



N E V A D A

AGENDA
Regular Meeting
Planning Commission

Wednesday, October 11, 2023 • 5:00 PM

Members

Jenni McCullar - Chairwoman
Angela Lewis - Vice Chair
Jan Hodges - Commissioner
Humayoon Lodhi - Commissioner
Barry Williams Sr. - Commissioner
Shellie Severa - Commissioner
Cody Wagner - Commissioner

Fernley City Council Chambers, 595 Silver Lace Boulevard, Fernley, NV 89408

Zoom information:

Please click the following link to join the webinar: <https://us02web.zoom.us/j/82966343247>, or one tap_mobile: 12532158782, Dial: 669 900 9128, Webinar ID: 829 6634 3247

Public Notice: This agenda has been physically posted in compliance with 241.020 at Fernley City Hall, 595 Silver Lace Blvd. In addition, this agenda has been electronically posted in compliance with NRS 241.020(3) at www.cityoffernley.org and NRS 232.2175 at <https://notice.nv.gov/>. To obtain further documentation regarding posting, please contact the City Clerk's Office at (775) 784-9830 or cityclerk@cityoffernley.org

Public Comment: Those wishing to address the Planning Commission may submit public comment through the online [public comment form found](#), or by sending an email to cityclerk@cityoffernley.org. Comments received prior to 4:00 pm the day of the meeting will be provided to the Planning Commission and added to the record but will not be read during the live meeting. Public comments received after 4 pm the day of the meeting will be included in the record but may not reach commission members before action is taken. Public comment, whether on action items or public comment, is limited to three (3) minutes per person. Unused time may not be reserved by the speaker, nor allocated to another speaker. The public may comment on any matter that is not specifically included on an agenda as an action item or comment on a specific agenda item. Items not included on the agenda cannot be acted upon other than to place them on a future agenda. Additionally, if you wish you can comment in person at the meeting or use the Raise your Hand feature in Zoom (*9 if you are participating via phone).

Accommodations: The Planning Commission and staff will make reasonable efforts to assist and accommodate individuals with disabilities desiring to attend the meeting. Please contact the City Clerk's Office at (775) 784-9830 in advance so that arrangements can be made.

Supporting Material: Staff reports and supporting material for the meeting are available at the City Clerk's Office, and on the City's website at www.cityoffernley.org. Pursuant to NRS 241.020(6), supporting material is made available to the general public at the same time it is provided to the City Council.

Order of Business: The presiding officer shall determine the order of the agenda. The Fernley Planning Commission may combine two or more agenda items for consideration; remove an item from the agenda; or delay discussion relating to an item on the agenda at any time. All items are action items unless otherwise noted. Items scheduled to be heard at a specific time will be heard no earlier than the stated time but may be heard later.

1. INTRODUCTORY ITEMS

- 1.1. Pledge of Allegiance**
- 1.2. Roll Call**
- 1.3. Public Forum**
- 1.4. (For Possible Action) Approval of Agenda**
- 1.5. (Possible Action) Approval of Minutes**

2. STAFF REPORTS

- 2.1. (For Possible Action) Discussion and possible action regarding City of Fernley Planning Commission Bylaws, last revised January 13, 2016.**

3. GENERAL BUSINESS

- 3.1. Presentation from Devin Moore of Kimley Horn regarding City of Fernley Transportation Master Plan, adopted by City Council July 1, 2020.**
- 3.2. Training**

4. PUBLIC HEARINGS

A. DISCUSSION WITH PLANNING COMMISSION & STAFF B. PUBLIC INPUT C. ADDITIONAL DISCUSSION WITH PLANNING COMMISSION & STAFF D. COUNCIL ACTION OR DIRECTION TO STAFF

- 4.1. (For Possible Action) Consideration and possible action to recommend that the City Council adopt Bill #335, an Ordinance to repeal and replace Section 32.06.140 (Planned Development) of the City of Fernley Development Code.**
- 4.2. (For Possible Action) Discussion and possible action on an annexation application (ANX23001) submitted by Summit Engineering on behalf of Lansing Companies regarding a request to annex a ±155.60-acre parcel generally located west of Duffy Drive, east of Truck Inn Way, and northwest of Nevada Pacific Parkway at Interstate 80 (APN: 021-581-07) into the City of Fernley.**
- 4.3. (For possible action) Discussion and possible action on a Conditional Use Permit application (CUP23006) submitted by City of Fernley in relation to the planned Community Response and Resource Center (known as the CRRC) to allow a building height maximum greater than 30 feet and to permit "Public Event Space" as a conditional use in the Public Facility (PF) zone at approximately 675 and 695 East Main Street (APNs: 021-103-18 and 021-103-57).**
- 4.4. (Possible Action) Consideration and possible action to recommend that the City Council conditionally adopt Bill #338, an Ordinance adopting the Victory Logistics District Planned Development (PD23001), including a Change of Zone from Industrial and General Commercial to Planned Development and a development standards handbook. The Planned Development consists of approximately 2,174 acres generally located south of Interstate 80 and east of Nevada Pacific Parkway (APNs 021-201-01 and -16; 021-211-02, -03, -04, and -06; 021-242-11 and -17; 021-251-25; 021-261-43 and -44).**

5. CHAIR AND COMMISSION ITEMS

(SUMMARY OR ACTIVITY REPORTS ON PLANNING ISSUES, ACTIVITIES OR ORGANIZATIONS IN WHICH INDIVIDUAL MEMBERS MAY BE INVOLVED. THIS ITEM IS TO PROVIDE GENERAL INFORMATION TO THE COMMISSION AND PUBLIC. NO DISCUSSION SHALL TAKE PLACE AND NO ACTION WILL BE TAKEN.)

6. PLANNING DIRECTOR ITEMS

(ACTIVITY SUMMARY OR UPDATES ON PROJECTS THAT HAVE BEEN PREVIOUSLY REVIEWED BY THE PLANNING COMMISSION. THIS ITEM IS TO PROVIDE GENERAL INFORMATION TO THE COMMISSION AND PUBLIC. NO DISCUSSION SHALL TAKE PLACE AND NO ACTION WILL BE TAKEN.)

7. ADDRESS REQUEST(S) FOR FUTURE AGENDA ITEMS

8. PUBLIC FORUM

9. ADJOURNMENT

Next Meeting: November 8th @ 5pm

**MINUTES OF THE
FERNLEY PLANNING COMMISSION MEETING
SEPTEMBER 13, 2023**

Vice-Chair Angela Lewis called the meeting of the Fernley Planning Commission to order at 5:00PM.

1. INTRODUCTORY ITEMS

1.1. Pledge of Allegiance

1.2. Roll Call

Present: Chairwoman Jennie McCullar (Zoom), Vice Chair Angela Lewis, Commissioner Jan Hodges, Commissioner Humayoon Lodhi, Commissioner Barry Williams Sr., Commissioner Shellie Severa, Commissioner Cody Wagner, Mayor Neil McIntyre, City Manager Ben Marchant, Deputy City Manager Lydia Altick, City Attorney Aaron Mouritsen, Deputy City Clerk Brenda Gosser (zoom), Administrative Specialist II Reba Skinner, Administrative Specialist I Sandy Harris, Senior Planner Shay League, Public Works Director Barry Williams.

1.3. Public Forum

Vice Chair Lewis called for Public Input. There was none at this time.

1.4. (For Possible Action) Approval of Agenda

Motion: I MOVE TO APPROVE TODAY'S AGENDA. **Action:** Approved. **Moved by:** Commissioner Cody Wagner, **Seconded by:** Commissioner Barry Williams Sr. **Vote:** Passed, **Summary:** Yes 7. **Yes:** Commissioner Hodges, Vice-Chair Lewis, Chairwoman McCullar, Commissioner Williams, Commissioner Severa, Commissioner Wagner, Commissioner Lodhi.

1.5. (Possible Action) Approval of Minutes

Motion: I MOVE TO APPROVE THE MINUTES OF AUGUST 9, 2023. **Action:** Approved. **Moved by:** Commissioner Jan Hodges, **Seconded by:** Commissioner Barry Williams Sr. **Vote:** Passed, **Summary:** Yes 7. **Yes:** Commissioner Hodges, Vice-Chair Lewis, Commissioner Lodhi, Chairwoman McCullar, Commissioner Williams, Commissioner Severa, Commissioner Wagner.

2. STAFF REPORTS

2.1. (For Possible Action) Consideration and possible action to uphold the decision of the Planning Director denying a Reasonable Accommodation request (RAD23001) to allow the keeping of livestock at 2836 South Fork Road.

The owner of 2836 South Fork Road was the subject of a neighbor's complaint about the three goats being kept on the property. Goats fall into the category of livestock, which is not permitted in the SF20 zoning district in which the property falls. To keep the goats, the property owner applied for a Reasonable Accommodation based on the claim that the goats are emotional support animals. The Planning Director carefully reviewed the application materials and determined (with the assistance of the City Attorney) that the requirements for a Reasonable Accommodation had not been met and denied the request. The applicant is now appealing this decision. City Attorney Aaron Mouritsen reviewed the relevant laws, statutes and regulations (Fernley Development Code, Federal Fair Housing Act, Rehabilitation Act, and American with Disabilities Act). The City reviewed whether accommodation is required under the Fair Housing Act. The

U.S. Department of Housing and Urban Development issued a guidance document in January 2020 titled "Assessing a Person's Request to Have an Animal as a Reasonable Accommodation Under the Fair Housing Act". This document proved helpful in determining if the three goats in question qualified as a reasonable accommodation. The document leads the reader through a series of questions that ultimately lead staff to the question of "Is the animal commonly kept in households?" The information provided by the applicant in their application does not show that these specific goats meet any of these criteria. The application does mention the need for goat's milk, but does not specify if it is one particular goat's milk or if benefits could be obtained from goat's milk bought in a grocery store. In addition, a goat producing milk is not a trained skill as required in the first criteria, nor is it addressing the emotional health of the applicant. The requested accommodation would fundamentally alter the nature of the current zoning regulations for single-family residential districts. Single-family residential zones are generally considered to be urban in nature with small to medium lots and no agricultural activity. The allowance of livestock would change the character of the existing neighborhood and potentially cause additional concern from neighbors. Livestock creates noise, odor, and sanitation issues that are not appropriate for suburban residential neighborhoods. There was an option provided to the appellant as an alternative, which is to allow her to keep the goats for 2 years and then end the accommodation. That would give her enough time before her family is transferred as part of the military to go somewhere else.

Commissioner Shellie Severa stated that the question regarding "housing providers" is an irrelevant question in this situation and unacceptable because they are the owners.

City Attorney Aaron Mouritsen stated that the HUD analysis is an encapsulation of Federal law. The HUD requirements take into account the Americans with Disabilities Act that is incorporated into their language when they discuss, for example, the service animals and their tiers for service animals.

Commissioner Cody Wagner asked what the process is if the applicant does not remove the goats after a given timeline.

City Attorney Aaron Mouritsen stated that Animal Control can move forward with a citation, that would go to the municipal court.

Commissioner Jan Hodges asked for consideration of setting a limit and if there were any sanitation issues inside the home.

Fernley City Resident, Brittnei Herlickson stated that these Nigerian Dwarf Goats are a quarter of the size of the Vietnamese Potbelly Pigs that are allowed in the City and they are Emotional Support Animals (ESA). She gave a history of her disabilities (physical and emotional) and how the goats and goat milk have helped in her recovery. The goat milk is for her consumption only. She stated that she had contacted the City of Fernley Planning Department before purchasing the home and they informed her that she could have her goats. Her goats remain in her back and side yards. She uses their droppings for fertilizing her garden. She stated that the soap she makes is from a melt-and-pour glycerin-based soap, and it is not made from her goat milk.

Commissioner Cody Wagner asked if there is a situation where the goats could be boarded in an area near her that allows goats that would serve the same purpose.

Brittnei Herlickson stated that, unfortunately, she does not have the physical ability to go back and forth twice a day, and the places she has looked at are smaller than her property.

Deputy City Clerk Brenda Gosser clarified that Brittnei Herlickson is licensed to sell soap that she makes at her home, she is a crafter.

Vice Chair Lewis called for public comment:

Justine Cross (Zoom) stated that she knows Brittnei and her goats. She purchased her goats from Brittnei and she strongly recommends that Brittnei keep her goats. This is her life and she does anything possible for her goats.

Motion: MOTION TO ALLOW THEM TO KEEP THE GOATS, THE ALTERNATIVE THAT THE CITY CAME UP WITH WORKING WITH THEM TO ALLOW THEM TO HAVE THE THREE GOATS ONLY FOR A 2-YEAR PERIOD WHILE THEY REMAIN AT THE RESIDENCE UNTIL THEIR JOB RESPONSIBILITY MOVES THEM TO A NEW LOCATION. **Action:** Approved. **Moved by:** Commissioner Shellie Severa, **Seconded by:** Commissioner Humayoon Lodhi. **Vote:** Passed, **Summary:** Yes 6, No 1. **Yes:** Commissioner Hodges, Vice-Chair Lewis, Commissioner Lodhi, Commissioner Williams, Commissioner Severa, Commissioner Wagner, **No:** Chairwoman McCullar.

3. PUBLIC HEARINGS

3.1. (For Possible Action) Consideration, discussion, and possible action to recommend that the City Council adopt Bill #332, an Ordinance to amend Section 32.07.020 (Accessory Dwellings) of the City of Fernley Development Code to conform with NRS Section 278.253 regarding tiny houses.

Senior Planner Shay League presented that based on direction received from both the City of Fernley Planning Commission and City Council, staff has prepared an amendment to Section 32.07.020 (Accessory Dwellings) allowing tiny homes on permanent foundations as accessory dwelling units.

Vice Chair Lewis asked for public input and there was none.

Motion: I MOVE TO RECOMMEND THAT THE CITY COUNCIL ADOPT BILL #332, AN ORDINANCE TO AMEND SECTION 32.07.020 (ACCESSORY DWELLINGS) OF THE CITY OF FERNLEY DEVELOPMENT CODE TO INCORPORATE TINY HOMES ON PERMANENT FOUNDATIONS AND WITH THE MODIFICATIONS AND DELETIONS PRESENTED BY THE CITY.

Action: Approved, **Moved by:** Commissioner Cody Wagner, **Seconded by:** Commissioner Shellie Severa. **Vote:** Passed, **Summary:** Yes 7. **Yes:** Commissioner Hodges, Vice-Chair Lewis, Commissioner Lodhi, Chairwoman McCullar, Commissioner Williams, Commissioner Severa, Commissioner Wagner.

3.2. (For Possible Action) Consideration, discussion, and possible action regarding MJD23002, a Major Deviation request from Lumos & Associates on behalf of Cari and Martin Bunyard to allow the creation of two, 2.5-acre lots in the Rural Residential, 5-acre minimum lot size (RR5) zone on a site ±5.00-acres size and approximately located at 1000 Jenny's Lane (APN: 020-351-03).

Senior Planner Shay League presented that the applicants seek to file a tentative parcel map and final parcel map to subdivide their 5-acre property into two separate equally sized lots. Their lot may not currently be subdivided because it is zoned RR5. The Major Deviation would allow the reduction in lot size. The applicant asks for the creation of two, 2.5-acre lots in the Rural Residential, 5-acre minimum lot size (RR5) zone on a site ±5.00-acres size and approximately located at 1000 Jenny's Lane (APN: 020-351-03). The key to compliance with this finding is the combination of "same vicinity" and "land use district". There are no other parcels in the area that have had to apply for this specific deviation, but there is no reason that such a request from the 3-6 remaining RR5 property owners would be denied. All the remaining property owners made the change from one rural residential zone to another before the current version of the master plan and development code were in effect.

For the purpose of full disclosure, Shay League stated that her parent owns property just outside of the noticing radius for this, and it does not affect her ability to be impartial about this item.

Vice-Chair Angela Lewis asked for any disclosures from any Commission Members:

*Commissioner Cody Wagner stated he does know the Bunyard's and that his primary residence is about 1/4 mile directly to the west of this parcel and neither of those will impact his impartial judgement.

*Vice-Chair Angela Lewis stated that she does know the applicant personally, owns property in that area, and her mother lives just up the street. This will not affect her ability to vote on this matter.

*Vice-Chair Angela Lewis read the disclosure for Chairwoman Jennie McCullar.

Senior Planner Shay League further presented the findings: MJD1 - The request is consistent with the stated purposes of title 32 zoning. MJD2 - Granting the major deviation will not be materially detrimental to the public health, safety or welfare, or injurious to property or improvements in the vicinity. MJD3 - Granting the major deviation is necessary for the preservation and enjoyment of a property right possessed by other property owners in the same vicinity and land-use district and is denied to the property for which the major deviation is sought.. MJD4 - Granting of the major deviation does not constitute a special privilege inconsistent with the limitations upon other properties in the vicinity and land-use district in which the property is located.

Chairwoman Jenni McCullar asked about hooking up to city sewer or septic. It is mandatory to hook up to city water but not city sewer and a second septic would be allowed.

Senior Planner Shay League stated that the applicant could possibly choose to hook into city sewer if they want to, the zoning in this area does allow for septic tank, providing the property is one acre or larger.

Vice-Chair Angela Lewis asked for public comment and there were none.

Motion: I MOVE TO APPROVE MAJOR DEVIATION MJD23002 BASED ON FINDS MJD1 - MJD4 AND THE FACTS SUPPORTING THOSE FINDINGS AS SET FORTH IN THE STAFF REPORT.

Action: Approved, **Moved by:** Commissioner Cody Wagner, **Seconded by:** Chairwoman Jenni McCullar.

Vote: Passed, **Summary:** Yes 6, No 1. **Yes:** Commissioner Hodges, Vice-Chair Lewis, Commissioner Lodhi, Chairwoman McCullar, Commissioner Williams, Commissioner Wagner, **No:** Commissioner Severa.

4. CHAIR AND COMMISSION ITEMS

None at this time

5. PLANNING DIRECTOR ITEMS

Senior Planner Shay League reported that Kimberly Horn will be at the October meeting, giving a presentation on the specifics of the city's master transportation plan. At the last meeting, the Commission voted to make a recommendation on a code amendment regarding the city's plan development. Staff has proposed another change to that and rather than push it forward to Council without the Commission's recommendation, it will be brought back in October.

Vice-Chair Angela Lewis announced that this was the last meeting for Commissioner Jan Hodges and Mayor Neal McIntyre presented him with an award for service.

Commissioner Jan Hodges thanked the Mayor, Commission and citizens of Fernley.

6. ADDRESS REQUEST(S) FOR FUTURE AGENDA ITEMS

None at this time.

7. PUBLIC FORUM

None at this time.

8. ADJOURNMENT

There being no further business to come before it, the Fernley Planning Commission meeting adjourned at 6:03 PM.

Approved by the Fernley Planning Commission on October 11, 2023, by a vote of:

AYES _____ NAYS: _____ ABSTENTIONS: _____ ABSENT: _____

ATTEST:

Chairwoman Jenni McCullar



CITY OF FERNLEY

Planning Commission AGENDA REPORT

Meeting Date: October 11, 2023

REPORT TO: Fernley Planning Commission

REPORT FROM: Shay League

FINANCIAL IMPACT:

Yes: No: X

CURRENTLY BUDGETED:

Yes: No: X

FUND/ACCOUNT:

N/A

ACTION REQUESTED: Motion
Resolution

AGENDA ITEM:

(For Possible Action) Discussion and possible action regarding City of Fernley Planning Commission Bylaws, last revised January 13, 2016.

AGENDA ITEM BRIEF:

This item is a resolution proposing the amendment of existing Planning Commission bylaws and the adoption of rules of procedure. City Council's rules of procedure require that the rules and operating guidelines for standing committees, such as Planning Commission, be adopted by a simple majority of Council members; due to that requirement, the proposed resolution is a joint resolution between Planning Commission and City Council.

RECOMMENDED MOTION:

Approval as presented

"I move to adopt Resolution #23-014 to amend the Planning Commission Bylaws and adopt the Rules of Procedure as presented by Staff; I further move to request City Council adopt this item as a joint resolution."

BUSINESS IMPACT (per NRS Chapter 237):

A Business Impact Statement is not required because this is not a rule (term excludes vehicles by which legislative powers are exercised under NRS Chapters 271, 278, 278A, or 278B).

See attached report for background, analysis, alternatives.

ALTERNATIVES:

Table

"I move to table this discussion until staff has made the following change(s) _____ to the [Bylaws and/or Rules of Procedure]."

Note: Though no other language has been provided, all motions consistent with City of Fernley Planning Commission parliamentary procedure are appropriate.

BACKGROUND:

The current governing document for this body is "City of Fernley Planning Commission By-laws, Adopted 11/14/2001, Revised 01/16/2016". After difficulty with the officer election process at the beginning of the year, Staff determined that Planning Commission bylaws as currently practiced are different than those recorded and determined the bylaws need to be updated.

During the bylaw review process, Council requested Staff clarify the issue of residency on advisement boards that report to Council. With the Mayor's support, the new draft of bylaws incorporates Nevada Revised Statutes (NRS) 268.120, which allows up to two members of the Planning Commission to be non-residents. As recommended by the City Attorney's office, Staff has also included the definition of "resident" found in NRS 281.050 (which pertains to election law) for the purpose of Planning Commission appointments.

Two other concerns that arose during the bylaw review process are the onboarding process for new Commissioners and the current status of Planning Commissioner as an uncompensated entirely volunteer role.

Due to the complexity of "Robert's Rules of Order", the City Attorney's office drafted rules of procedure for City Council, which Council adopted through Resolution #17-011. Planning Staff chose to use that document as a template for rules of procedure for Planning Commission and recommend the Commission adopt the rules of procedure alongside their bylaws. The Commission would then only rely on "Robert's Rules of Order" when a situation is not addressed in the rules of procedure. Staff has also included in the bylaws that new Planning Commissioners should receive a copy of the bylaws, a copy of the rules of procedure, and the official abridged version of "Robert's Rules of Order" upon appointment. Staff hopes to further incorporate training regarding land use and development topics throughout the year, but did not outlay specific avenues in the bylaws. By not stipulating how training should happen, other than annual ethics training, Staff hopes to remain flexible and responsive to the Commission's training needs.

The subject of compensation for Planning Commissioners as allowed by NRS 278.040 needs to be addressed directly with Fernley City Council. Planning Staff is working on an item to put before them and hopes to gain approval for a modest stipend in recognition of the value this body contributes to City of Fernley. If approved, Staff intends for such compensation to begin the beginning of fiscal year 2024/2025, which begins July 1, 2024.

RELEVANT LAWS, STATUTES, AND REGULATIONS:

General

Nevada Revised Statutes (NRS)

Fernley Municipal Code (FMC)

Fernley City Council Rules of Procedure (Attached)

City of Fernley Planning Commission By-laws (Attached)

Specific

[NRS Chapter 241](#) - Meetings of State and Local Agencies (often referred to as "Nevada Open Meeting Law")

[NRS 268.110 - 268.220](#) - Powers and Duties Common to Cities and Towns - City Planning Commission

[NRS 278.030 - 278.265](#) - Planning and Zoning - Planning Commissions

[NRS 278.210](#) - Planning and Zoning - Adoption of master plan and amendments by commission

[NRS 281.050](#) - Eligibility and Disqualifications for Office or Employment - Residence for purposes of eligibility for office

[NRS281A.400 - NRS281A.430](#) - Code of Ethical Standards

[FMC Chapter 9, Article I](#) - Boards and Commissions - Planning Commission

Note: This list and links for relevant laws, statutes, and regulations is intended for convenient reference and is not all-inclusive. Planning Department will ensure all links are active and relevant until the October 11, 2023 Planning Commission meeting, but does not guarantee the links will remain accurate or relevant after that date.

FINANCIAL IMPLICATIONS:

N/A

ATTACHMENTS:

1. Resolution # 23-014
2. Current Planning Commission Bylaws
3. City Council Rules of Procedure

RESOLUTION # 23-014

A JOINT RESOLUTION OF THE FERNLEY CITY COUNCIL AND FERNLEY PLANNING COMMISSION, STATE OF NEVADA, PROVIDING FOR BYLAWS AND RULES OF PROCEDURE FOR FERNLEY PLANNING COMMISSION

WHEREAS, in accordance with Nevada Revised Statutes (NRS) 278.050, the Fernley Planning Commission shall adopt rules for transaction of business; and

WHEREAS, in accordance with Fernley City Council "Rules of Procedure", adopted by Resolution # 17-011 on June 7, 2017, the roles and operating guidelines for the various Fernley City Council advisory boards shall be adopted by a majority of the Council; and

WHEREAS, the Fernley Planning Commission seeks to adopt rules of procedure as similar as possible to those adopted by Fernley City Council; and

WHEREAS, the Fernley Planning Commission recognizes and agrees that their bylaws need to be amended to update them as a matter of order; and

WHEREAS, the Fernley Planning Commission believes establishing rules of procedure and amending their bylaws will help the Commission to conduct its affairs in a timely and efficient manner; and

WHEREAS, the rules of procedure or bylaws do not create substantive rights for third parties or participants in proceedings before the Commission; and

WHEREAS, the Fernley Planning Commission reserves the right to suspend or amend the rules of procedure whenever a majority of the Commission decides to do so; and

WHEREAS, when the rules of procedure do not address a procedural issue, the Commission may consider the most recent edition of Robert's Rules of Order for guidance; and

WHEREAS, the failure of the Commission to strictly comply with the rules of procedure or bylaws shall not invalidate any action of the Commission; now therefore,

BE IT RESOLVED BY FERNLEY CITY COUNCIL AND FERNLEY PLANNING COMMISSION, that attached "Exhibit A" and "Exhibit B" are hereby adopted for the City of Fernley, Nevada.

RESOLUTION PASSED, APPROVED, AND ADOPTED this 1st day of November, 2023, by the Fernley Planning Commission, City of Fernley, State of Nevada.

Aye: _____ Nay: _____ Abstention: _____ Absent: _____

ACKNOWLEDGED AND APPROVED:

DATED:

Jenni McCullar, Chairwoman

ATTEST:

Brenda Gosser, Deputy City Clerk

RESOLUTION PASSED, APPROVED, AND ADOPTED this 1st day of November, 2023, by the Fernley City Council, City of Fernley, State of Nevada.

Aye: _____ Nay: _____ Abstention: _____ Absent: _____

ACKNOWLEDGED AND APPROVED:

DATED:

Neal E. McIntyre, Mayor

ATTEST:

Kim Swanson, City Clerk

ACKNOWLEDGED:

DATED:

Vice-Chair Angela Lewis

Commissioner Humayoon Lodhi

Commissioner Shellie Severa

Commissioner Cody Wagner

Commissioner Barry Williams Sr.

Resolution # 23-014

“Exhibit A”

City of Fernley
Planning Commission
Bylaws

City of Fernley Planning Commission Bylaws

Creation of the Planning Commission

- A. Authorization.** Pursuant to Nevada Revised Statutes (NRS) 268.110, the Planning Commission is hereby created and appointed by the City Council. There shall be seven voting members.

Planning Commission Membership

- A. Appointment.** The mayor shall appoint, subject to advice and consent by the City Council, seven members of the Commission, not more than two of whom shall be nonresidents of the city (NRS 268.120). The term “resident” is defined in accordance with the guidelines established in NRS 281.050 for the purposes of eligibility for office. The Mayor, City Attorney, and City Engineer, or designees of these parties, shall be ex-officio members of the Commission.
- B. Legal Counsel.** The City Attorney’s Office shall be the legal counsel for the Commission.
- C. Compensation.** The City Council may provide by resolution for compensation, expenses, and subsistence allowances to Commission members, subject to limitation of NRS 278.040.
- D. Term of Office.** The term of each appointed member shall be four years, or until a successor takes office. Terms of the Commission shall be staggered pursuant to NRS 268.120(2).
- E. Absence.** The Planning Director may recommend to the Mayor removal of a Commissioner when they miss 33 percent or greater of regularly scheduled meetings per annum due to unexcused absences. An absence is excused if:
- a.** It is due to personal emergency of the Commissioner or a family member; or
 - b.** (2) It is otherwise unavoidable and the Commissioner provides 24 hours advance notice to the Planning Director at planning@cityoffernley.org or 775-784-9810.
- F. Vacancies.** All vacancies shall be filled by the mayor for the unexpired term.

Election of Officers: Powers and Duties

- A. Election of Officers.**

1. The Commission shall, at its first regular meeting in January, unless the January meeting is cancelled, in which case at the next regularly scheduled meeting, elect from its membership a Chair and Vice-Chair.
2. Each shall serve for a term of one year or until their successor(s) are elected.
3. Any office may be re-elected but may not serve more than two consecutive terms in a single office.
4. Following the election, the gavel shall be passed to the officers at the existing meeting of the Commission.
5. Should a permanent vacancy occur in the position of Chair or Vice-Chair, the Commission, at its next meeting, shall fill the vacancy by electing a new Chair and/or Vice-Chair from its remaining membership. The term of such election shall expire at the next January meeting, or the next regularly scheduled meeting if the January meeting is cancelled. If a Chair or Vice-Chair serves in the position for six months or less, that individual shall be eligible for two additional one-year terms.

B. Powers and Duties

1. Chair

- a. Serve as Presiding Officer
- b. Ensure meetings are held in compliance with "City of Fernley Planning Commission Rules of Procedure", hereafter referred to as Rules of Procedure.

2. Vice-Chair

- a. Serve as Presiding Officer when the Chair is absent and follow Rules of Procedure when presiding.
- b. In the event of the resignation or permanent vacancy of the Chair, the Vice-Chair will perform such duties as are imposed of the Chair until the Commission elects a new Chair.
- c. Should the Chair nor Vice-Chair be present, a temporary Chair shall be elected by a vote of the members present.

3. Planning Commissioners

- a. Arrive on time for all meetings.

- b. Review all meeting material in preparation for Commission meetings and be properly prepared to discuss the items that are on the agenda.
- c. Notify the Planning Director when unable to attend a meeting.
- d. Wait to speak until acknowledged by the Chair.

Meetings and Conduct

A. Meetings.

1. All meetings will be held in the Council Chambers at Fernley City Hall, 595 Silver Lace Boulevard. Meetings will be called to order at 5:00 PM, unless advertised otherwise, canceled, or rescheduled.
2. Regular meetings of the Commission shall be held on the second Wednesday of each month. If the regular meeting date falls on a holiday, the meeting shall then be held on the next business day.
3. Special meetings may be called by the Chair when deemed necessary. Members of the Commission shall be notified at least three days prior to the special meeting. Special meetings shall be noticed and agenzized pursuant to NRS Chapter 241, hereafter referred to as "Nevada Open Meeting Law".
4. In the event there is no business to conduct, a notice shall be emailed to the Commissioners and posted as required by Nevada Open Meeting Law.
5. Noticing and posting of the agenda shall follow the Nevada Open Meeting Law as set forth by NRS.
6. The Chair shall have the authority to eject or cause to be ejected any person(s) whose behavior disturbs or causes unreasonable interruptions to the proceedings of the Commission.
7. All rules of order not herein provided for shall be determined in accordance with Fernley Planning Commission Rules of Procedure and Nevada Open Meeting Law.

B. Public Rights.

1. Public hearings shall be conducted in accordance with subsection 5-5 of the Rules of Procedure.

2. Any person engaging in prohibited conduct in accordance with subsection 5-4 of the Rules of Procedure be requested to leave the meeting. The presiding officer may call for a break to notify Lyon County Sheriff's Department to remove any disruptive person(s).
3. Interested persons, or their authorized representatives, may address the Commission for the presentation of protest, petitions, or communications relating to any matter over which the Commission has control when the item is under consideration by the Commission.
4. Written information and materials provided by the project proponent, including graphics, photographs, and records of verbal statements, which pertain to Commission meetings, may be submitted to the Commission staff. All such information and materials shall be received a minimum of three working days in advance of the meeting for distribution to all Commission members and the public.

C. Rules for Voting.

1. Approval of any motion brought before the Commission shall require the affirmative vote of a majority of the members present, unless otherwise specified by law.
 - a. NRS 278.210 requires that the adoption of the master plan, or of any amendment, extension or addition thereof, must be by resolution of the Commission carried by the affirmative votes of not less than two-thirds (five members) of the total membership of the Commission (seven members).
2. A tie vote results in a failed motion. A tie vote is neither denial nor approval of the motion. A denial and an approval are both "actions": requiring a majority vote. If there is a tie vote, and there are less than seven Commissioners present, upon consent of the applicant, the matter shall be continued to the next regular meeting of the Commission to allow absent members to vote on the matter.

If the applicant does not consent, and the Commission is not sitting as an appellate body, the Commission may make subsequent motions. If the matter involves an appeal and an affirmative vote does not occur, the result is that the decision appealed stands as decided by the decision-maker from which the appeal was taken.

3. Planning Commissioners desiring to abstain on a question shall do so at the time the agenda item is called and shall state the reason for the abstention. With respect to the item, the Commissioner shall move to the public area during the duration of the agenda item's discussion.

Ethics and Responsibilities

Planning Commissioners shall comply with state and local regulations related to conflict of interest.

A. Conflict of Interest

1. In connection with matters coming before the Commission, NRS 281A.420, as amended, discusses three circumstances where disclosure and abstention may be required. These three circumstances include when a member of the Commission:
 - a. Has received a gift or loan;
 - b. Has a pecuniary interest; or
 - c. Has a commitment in a private capacity to others in connection with the matter, (i.e.: familial relationship, business relationship or close personal friendship).
2. If a member of the Commission has an ownership interest in property or a project being considered individually for a master plan amendment, re-zoning, special use permit, variance, tentative map or an entitlement, the member must abstain, but may address the Commission to discuss the facts about the property. Said Commissioner must not ask, advocate, or give any reason for or against a vote.
3. The legislature encourages appointed or elected member of public bodies to vote, not abstain. NRSA.420(4)(b) states: "Because abstention by a public officer disrupts the normal course of representative government and deprives the public and the public officer's constituents of a voice in governmental affairs, the provisions of this section are intended to require abstention only in clear cases where the independence of judgment of a reasonable person in the public officer's situation would be materially affected by the public officer's acceptance of a gift or loan, significant pecuniary interest or commitment in a private capacity to the interests of another person."
4. Planning Commissioners should not accept any gifts from applicants, representatives of applicants, or other people, institutions, associations, or organizations concerned with matters which have either been or are before the Commission. Even a well-intentioned and innocent action has the appearance of a conflict of interest.

On-Site Inspections and Neighborhood Meetings

- A. NRS 278.190(3) permits the Commissioners to conduct site visitations in the performance of their functions.
- B. If the applicant arranges a tour of the property, it is strongly recommended that two or three Commissioners attend jointly.
- C. An applicant may hold neighborhood meetings to solicit neighborhood input, provide information to the neighborhood, and attempt to resolve disputes prior to the presentation of their applications. Should the Commissioners wish to attend, they shall ensure that the requirements of the Nevada Open Meeting Law are met. The Commissioners must also disclose their attendance at the meeting.

Amendments to Bylaws

- A. The Commission Bylaws may be amended by the Commission by resolution as deemed necessary by a majority vote of the Commission members.
- B. The resolution to amend Planning Commission Bylaws must also be adopted by a majority vote of City Council members.
- C. An amendment to the Bylaws shall become effective immediately upon adoption unless the motion to adopt specifies another time for becoming effective.

Attendance at City Council Meetings

- A. Members of the Commission may attend the City Council meetings provided that all requirements of the Nevada Open Meeting Law are met.
- B. A member of the Commission shall not comment or express the opinion of the Commission on planning items being considered by the City Council.

Resolution # 23-014

“Exhibit B”

City of Fernley
Planning Commission
Rules of Procedure

**City of Fernley
Planning Commission
Rules of Procedure**

SECTION 1 - PURPOSE AND BASIC PRINCIPLES

1-1. Purpose of Rules of Procedure

- A. To enable the City of Fernley Planning Commission to transact business fully, expeditiously, and efficiently while affording every opportunity to citizens to witness the operations of government;
- B. To protect the rights of each individual Commissioner;
- C. To preserve a spirit of cooperation among Commissioners;
- D. To determine the will of the Planning Commission on any matter.

1-2. Basic Principles Underlying Rules of Procedure

- A. The business of the Commission should proceed in the most efficient manner possible;
- B. Rules of Procedure must be followed consistently;
- C. Commission actions should be the result of a decision on the merits and not a manipulation of the procedural rules;
- D. Only one subject may claim the attention of the Commission at one time;
- E. Each item presented for consideration is entitled to full and free discussion;
- F. Every member has equal rights to participate and vote on all issues;
- G. Every member must have equal opportunity to participate in decision-making;
- H. The will of the majority must be carried out pursuant to the City's ordinances and resolutions; and
- I. The Commission must act as a body.

SECTION 2 - MEETINGS

2-1. When and Where Regular Meetings Are Held

- A. Commission meetings and locations will be held as provided in “City of Fernley Planning Commission Bylaws”.

2-2. Adjourned or Recessed Meetings

- A. A meeting of the Commission is adjourned when the Commission has finished its business and is bringing the meeting to a close, with the intention of holding another meeting at a later date. Generally, when a meeting of the Commission is adjourned, the next meeting of the Commission is preceded by opening ceremonies. A meeting of the Commission is recessed when the Commission takes a break between sittings and after the recess business is resumed where it left off.
- B. A properly called regular or additional scheduled meeting may be recessed or adjourned to a time and place certain by a motion made and adopted by a majority of the Commission in an open session during the regular or additional scheduled meeting. The motion shall state the time and place when the meeting will reconvene. No further notice need be given of such a recessed or adjourned session of a properly called regular or additional scheduled meeting other than the requirements of Nevada Revised Statutes (NRS) Chapter 241.

2-3. Seating Arrangement

- A. The presiding officer shall occupy the center seat on the dais. The remaining members of the Commission shall sit to the left and right of the Chair.

2-4. Presiding Officer

- B. Unless otherwise designated by the Chair, the Chair shall be the presiding officer. The presiding officer shall preserve order and decorum among the members and enforce the rules of the Commission and determine the order of business. The presiding officer shall state every question coming before the Commission, announce the decision of the Commission on all subjects, and decide all questions of order, subject to an appeal of the Commission, in which event a majority vote of the Commission shall govern conclusively to determine such question of order.

SECTION 3- PARLIAMENTARIAN

3-1. Parliamentarian

The City Attorney shall serve as the Parliamentarian for the purpose of interpreting these Rules of Procedure and the Nevada Revised Statutes, as amended, as may be

directed by the presiding officer, or as required as a result of a point of order raised by one or more Commissioners. If the City Attorney is unavailable, their designee, or the Planning Director shall serve as the Parliamentarian.

3-2. Preservation of Order

- A. At meetings of the Commission, the presiding officer shall preserve order and decorum. The presiding officer shall have the following powers:
 - 1. To rule on motions in or out of order, including any motion not germane to the subject under discussion or patently offered for obstructive or dilatory purposes;
 - 2. To determine whether a speaker has gone beyond reasonable standards of courtesy in their remarks and to entertain and rule on objections from other members on this ground;
 - 3. To entertain and answer questions of parliamentary law or procedure;
 - 4. To call a brief recess at any time;
 - 5. To adjourn in an emergency.
- B. A decision by the presiding officer under any of the first three powers listed above may be appealed to the Commission upon motion of any member. Such a motion is in order immediately after a decision under those powers is announced and at no other time. The member making the motion need not be recognized by the presiding officer, and the motion, if timely made, may not be ruled out of order. There are two exceptions to this right of appeal: The presiding officer may adjourn without the Commission's vote or appeal in an emergency; and they may also call a brief recess without a vote at any time, when necessary to reduce friction among the members. The presiding officer must continue to address the motion upon return.

SECTION 4 - AGENDA

4-1. Preparation

The City Clerk shall prepare an agenda for all regularly scheduled and special meetings of the Planning Commission.

SECTION 5 - ORDER OF BUSINESS FOR COMMISSION MEETINGS

5-1. Order of Business

- A. The Order of Business shall be determined by the Presiding Officer.

5-2. Citizen Participation

- A. Every petition, communication, or address to the Commission shall be in respectful language, whether verbal or written.
- B. Public Presentations: Public presentations shall be for the purpose of allowing members of the public to present any matter which, in their opinion, deserves the attention of the Commission. They shall not serve as a forum for debate with the Commission.

5-4. Prohibited Conduct

- A. Persons appearing before the Commission will not be allowed to:
 - 1. Use profanity or vulgar language or gestures;
 - 2. Use language which insults or demeans any person or which, when directed at a public official or employee, is not related to their official duties; however, citizens have the right to comment on the performance, conduct and qualifications of public figures;
 - 3. Make nongermene or frivolous comments;
 - 4. Interrupt other speakers or engage in behavior that disrupts the meeting including but not limited to applause, cheers, jeers, etc.;
 - 5. Engage in behavior that reasonably intimidates others;
- B. The presiding officer shall preserve order and decorum at Commission meetings as defined by Resolution. If necessary, and as a last resort, and pursuant to Resolution, the presiding officer may expel a member of the Commission from the meeting for the duration of the meeting, for conduct which the presiding officer deems to be exceedingly disruptive or threatening, after the presiding officer has warned the member of the Commission to cease the conduct, and after a recess has been taken to allow the situation to calm down. Expulsion is subject to an appeal of said decision forthwith by a member of the Commission, in which event a concurrence of two-thirds of the Commissioners in attendance shall govern and conclusively determine such question of order or decorum.

5-5. Public Hearings

- A. This section of the agenda shall be for public hearings as required by City, State, or Federal law, or as the Commission may direct.
- B. The presiding officer shall conduct all public hearings.
- C. The order of public hearings shall be as follows:
 - 1. The presiding officer shall open the public hearing.
 - 2. Hearing shall begin with a brief presentation from a staff member and/or representative from the cognizant board, authority, commission, or committee. The presentation shall summarize the facts about the issue and the staff recommendation. Commissioners may seek clarification during the presentation.
 - 3. In land use cases, rezoning, or conditional use permits, the Planning Director shall determine the presentation's course. The landowner/applicant and/or representative shall have an opportunity to present after staff have made their presentation but prior to public input on the matter. The applicant's presentation shall be limited to (10) ten minutes.
 - 4. Each speaker must clearly state their name. Each speaker will have (3) three minutes to address the Commission. A speaker representing a group shall identify the group at the beginning of their remarks. A group may have no more than one spokesperson.
 - 5. After public comments have been received, in a land use case the applicant or the representative of the applicant, at their discretion, may respond with a rebuttal.
 - 6. The presiding officer may, at their discretion, instruct staff to answer any questions raised by the public during the hearing.
 - 7. Upon the conclusion of public comments, or the applicant's rebuttal in a land use case, the presiding officer shall close the public hearing.
- D. When a public hearing has been closed by the presiding officer, no further public comment shall be permitted. Commissioners, however, may direct questions to the applicant, the representative of the cognizant board, authority, commission, committee, to a speaker, or to a staff member for clarification prior to taking any vote, if a vote is in order.
- E. Following the close of the public hearing, the presiding officer may entertain a motion to dispose of the issue and the Commission may

debate the merits of the issue.

SECTION 6 - RULES OF PROCEDURE FOR COMMISSION MEETINGS

6-1. Quorum

- A. A majority of the members of the Commission must be present to conduct business. A quorum is a majority of the entire membership of the Commission, including any vacant seats.
- B. Quorum refers to the number of members present at a meeting, not the number of members voting on the issue. If no quorum is present or if a quorum is lost, the Commission can only (i) adjourn, (ii) recess, or (iii) take steps to obtain a quorum.
- C. If a quorum fails to attend any meeting, those attending may adjourn to such other time prior to the next regular meeting as they may determine, and the Clerk shall enter such adjournment in the minute book of the Commission and shall notify absent members thereof in the same manner as required for special meetings.
- D. If the Nevada ethics code, as delineated in NRS 281A, prevents some of the members of the Commission from participating in an item of business, a majority of the remaining members of the Commission shall constitute a quorum.

6-2. Priority in Speaking on the Commission

When two or more members of the Commission wish to speak at the same time, the presiding officer shall name the one to speak.

6-3. Comments, Queries of Commissioners

Commissioners are to observe the following rules during the discussion of agenda items:

- A. The presiding officer shall keep discussion germane to the subject. Points of clarification shall be limited to questions only. The presiding officer shall rule other comments out of order.
- B. Commissioners may address questions to the Planning Director or staff present at the meeting. Staff members should be at a microphone when answering Commissioners' questions. All legal questions should be addressed to the City Attorney.

6-4. Action by the Commission

- A. Items of business will be considered and dealt with one at a time, and a new proposal may not be put forth until action on the preceding one has been concluded.

6-5. Motions

- A. Informal discussion of a subject is permitted while no motion is pending.
- B. Any Commissioners may make a motion.
- C. Members are required to obtain the floor before making motions or speaking, which they can do while seated.
- D. A member may make only one motion at a time.
- E. Except as otherwise stipulated in these rules of procedure, all motions require a second. A motion dies for lack of a second.

6-6. Substantive Motions

- A. A substantive motion is any motion that deals with the merits of an item of business and is within the Commission's legal powers, duties, and responsibilities.
- B. A substantive motion is out of order while another substantive motion is pending.

6-7. Procedural Motions

- A. Procedural motions are those motions that the Commission may use to "act upon" a substantive motion by amending it, delaying consideration of it, and so forth. Procedural motions are in order while a substantive motion is pending and at other times, except as otherwise noted.
- B. In addition to substantive proposals, only the following procedural motions, and no others, are in order. Unless otherwise noted, each motion requires the floor and a second, is debatable, may be amended, and requires a majority of the votes cast, a quorum being present for adoption. Procedural motions are listed below in their order of priority. If a procedural option is not listed below, then it is not available.
 - 1. To Appeal a Procedural Ruling of the Presiding Officer. A decision of the presiding officer ruling a motion in or out of order, determining whether a speaker has gone beyond reasonable

standards of courtesy in their remarks, or entertaining and answering a question of parliamentary law or procedure may be appealed to the Commission which shall decide the matter by majority decision. Such an appeal is in order immediately after such a decision is announced and at no other time. The member making the motion need not be recognized by the presiding officer, the motion does not require a second, and the motion, if timely made, may not be ruled out of order.

2. Motion to Adjourn. In addition to the presiding officer's authority to call a recess or adjourn without a motion, the Commission may also make a motion to adjourn. The motion may be made only at the conclusion of action on a pending substantive matter; it may not interrupt deliberation of a pending matter. The motion is not debatable and cannot be amended.
3. Motion To Take a Brief Recess. This motion allows the Commission to pause briefly in its proceedings. A motion to take a brief recess is in order at any time except when a motion to appeal a procedural ruling of the presiding officer or a motion to adjourn is pending.
4. Motion To Suspend the Rules. The Commission may suspend provisions of its rules of procedure. The Commission may not, however, suspend any provisions of the rules that state requirements imposed by law on the Commission. For adoption, a motion to suspend the rules requires unanimous consent or an affirmative vote of two-thirds of members present.
5. Motion To Defer Consideration. The Commission may defer action on a substantive motion to a more convenient time. The Commission may use the following motions to defer consideration of a substantive motion:
 - (a) A motion to "table" is used to temporarily set aside an item of business to deal with a more urgent item. Once an item of business has been presented, a motion to table is needed to bring the item back before the public body for discussion.
 - (b) A motion to "postpone" delays debate on an item of business so that it may be considered at a later date. An item of business may be "postponed definitely," when it is continued to a definite time or date or "postponed indefinitely" if no future time or date is specified in the motion. A matter that has been postponed to a certain time or day shall be brought up again automatically when that time arrives. When a matter has been postponed indefinitely it takes an affirmative

vote of a majority of the Commission to bring the matter back for further discussion.

- (c) A Motion/Item can be postponed if it does not conflict with regulatory and/or statutory deadlines.

6. Motion to Call the Question. The presiding officer has authority to call the question. The call of the question is not in order until every member of the Commission has had an opportunity to speak.
7. Motion To Amend. Any substantive motion properly on the floor may be amended. An amendment to a motion must be pertinent to the subject matter of the motion. An amendment is improper if adoption of the motion with that amendment added would have the same effect as rejection of the original motion. A proposal to substitute completely different wording for a motion or an amendment shall be treated as a substitute motion. Once a motion has been offered to the Commission, it is necessary for the person making the original motion to approve any proposed amendment to the motion. It is also up to the person seconding the motion to decide whether it should be changed by amendment.
8. Withdrawal of Motion. A motion may be withdrawn by the introducer at any time before it is amended or before the presiding officer puts the motion to a vote, whichever occurs first.
9. Motion to Reconsider. The Commission may vote to reconsider its action on a matter. The motion to reconsider must be made before adjourning the meeting and can only be made by a member who voted with the prevailing side. The motion cannot interrupt deliberation on a pending matter but is in order when action on a pending matter concludes. A motion to reconsider may not be used in a land use decision involving a rezoning or a conditional use permit. A motion to reconsider may not be used in other land use decisions unless the applicant is still present at the current meeting and the motion is reheard at the current meeting.

6-8. Debate

- A. The presiding officer shall state the motion and then open the floor to debate. The presiding officer shall preside over the debate according to the following general principles:
 1. The maker of the motion is entitled to speak first;
 2. A member who has not spoken on the issue shall be recognized

before someone who has already spoken;

3. To the extent possible, the debate shall alternate between proponents and opponents of the measure;
4. The presiding officer may participate in the debate prior to declaring the matter ready for a vote;
5. Commissioners shall not engage in nonpublic communications amongst themselves regarding a motion that is on the floor for debate, including but not limited to, electronic communications or whispering.

6-9. Duty to Vote

- A. Each member of the Commission who is present at a meeting shall be required to vote upon all issues for decision unless prohibited from doing so by Nevada ethics laws.
- B. If there is an abstention, it shall be the responsibility of the City Clerk to note the abstention and the reason for abstaining for the record.

6-10. Method of Voting

- A. After debate, the presiding officer shall ensure that the motion is clear and call for the vote.
- B. All questions submitted to the Commission shall be determined by a majority vote of the members voting on any such question, unless required by special or general law.
- C. For a motion in a zoning matter to be adopted, it must be approved pursuant to all relevant laws and/or regulations.
- D. All questions submitted to the Commission for decision shall be decided by a vote of "aye" or "nay." Any member may request a roll call vote. In any case, the presiding officer shall announce the results of the vote.

6-11. Decisions on Points of Order

Any Commissioners may raise a point of order without being recognized by the presiding officer. The presiding officer shall refer any point of order to the Parliamentarian. The Parliamentarian shall advise the presiding officer who shall then make a ruling on the point of order.

SECTION 7 - GENERAL OPERATING POLICY

7-1. Broadcasting Commission Meetings

The Clerk shall make reasonable efforts at all regular meetings of the Commission to broadcast the meetings live on the internet. Copies of the broadcast may be obtained by the public from the City Clerk's office.

7-2. Minutes of Commission Meetings

The minutes of the Commission meetings shall reflect the official acts of the Commission. They shall provide a summary of discussion and record Commission votes. Minutes shall be considered for approval at the next regularly scheduled meeting.

7-3. Amending The Rules of Procedure

These rules may be discussed at any regular meeting or at any properly called special meeting that includes revision of the rules as one of the stated purposes of the meeting. Adoption of an amendment shall require an affirmative vote of a majority of the Commission, followed by an affirmative vote of a majority of the City Council.

7-4 Special Rules of Procedure

The Commission may adopt its own special rules of procedure to cover any situations that are not adequately addressed in these Rules of Procedure. Adoption of a special rule of procedure shall require an affirmative vote of a majority of a quorum of the Commission. The adopted special rule must be presented to City Council for a vote within thirty (30) days; following an affirmative vote of a majority of a quorum of the City Council, the special rule of procedure may be adopted as a standing rule.

**CITY OF FERNLEY
PLANNING COMMISSION
BY-LAWS**

Adopted 11/14/2001

Revised 01/13/2016

Article I – The Commission

Section 1. Name of Commission: the name of the commission shall be the Fernley Planning Commission (Hereinafter the Commission).

Section 2. Office of the Commission: The office of the Commission shall be the City of Fernley Planning Department, 595 Silver Lace Boulevard, Fernley, NV 89408.

Article II – Membership

Section 1. The mayor shall appoint, subject to advice and consent by the City Council, the seven members of the Commission. The members shall be residents of the City of Fernley. The mayor, city attorney and city engineer or designee shall be ex-officio members of the Commission.

Section 2. Legal Counsel: The City Attorney's Office shall be the legal counsel for the Commission.

Section 3. Compensation: The Council may provide by resolution for compensation, expenses and subsistence allowances to the Commission members, subject to the limitation of NRS 278.040.

Section 4. Terms of Office: The term of each appointed member shall be four (4) years, or until his/her successor takes office. Members presently serving on the Commission may serve the balance of the term for which they were appointed. Terms of the Commission shall be staggered pursuant to NRS 268.120(2).

Section 5. Removal from the Commission: Members may be removed from office, after a public hearing, by a majority of the City Council for just cause. Removal may be recommended to the City Council by a majority vote of the whole commission for two (2) consecutive unexcused absences and three (3) unexcused absences within a calendar year or for otherwise failing to meet the requirements of office.

Section 6. Vacancies: Vacancies occurring other than through the expiration of terms by the Mayor as provided by NRS 268.120(3).

Article III – Officers and Responsibilities

Section 1. Officers of the Commission: The officers of the Commission shall be a Chairman, Vice-Chairman and Secretary.

A. Chairman:

1. Presides over all meetings of the Commission.
2. Calls special meetings of the Commission in accordance with the By-Laws.
3. Signs certain documents and maps of the Commission such as resolutions, the land use map and official letters from the Commission.

4. Insures that all actions of the Commission are properly taken.
5. Preserves order and decorum, prevents attacks on personalities or the impugning of the members' motives and confines member debate to the question under discussion.

B. Vice Chairman:

1. Presides at any regular or special meeting of the Commission in the absence of the Chairman; and in the event of the resignation or death of the chairman, will perform such duties as are imposed on the Chairman until such time as the Commission shall elect a new Chairman.

C. Secretary:

1. The recording secretary is responsible for keeping an accurate record of all proceedings and may not be a member of the Commission. In addition, the Secretary is responsible to prepare and file with the City Council an annual report at the end of each calendar year.

Section 2. Election of Officers:

- A. The Chairman and vice-Chairman shall be elected from among the members of the Commission by a simple majority vote at the first regular meeting of the Commission at the beginning of each calendar year.
- B. They shall hold office for one (1) year or until their successor(s) are elected and qualified.
- C. Any office may be re-elected but may not serve more than two (2) consecutive terms in a single office.
- D. Following the election, the gavel shall pass to the officers at the existing meeting of the Commission.

Article IV – Meetings

Section 1. Meetings:

- A. Unless otherwise specified, regular meetings shall be held in the Council Chambers on the second Wednesday of the month.
- B. Special meetings may be called by the Chairman when deemed necessary. Members of the Commission shall be notified at least three (3) days prior to the special meeting. Special meetings shall be noticed and agenzized pursuant to the Open Meeting Law.
- C. Executive meetings may be called by the Chairman when deemed necessary. Members of the Commission must be notified at least three (3) days prior to the executive meeting. Such executive meeting shall consider only internal and confidential matters. Neither discussion nor decision shall be made on applications pending before the Commission.
- D. In the event that there is no business to conduct, a notice shall be mailed to the Commission and posted as required by the Open Meeting Law.

- E. Noticing and posting of the agenda shall follow the open meeting law as set forth by NRS.

Section 2. Quorum: A quorum shall consist of four (4) members of the membership of the Commission and shall be empowered to conduct Commission business. However, NRS 278.210 requires that five (5) members of the Commission be present to vote on any adoption, amendment, extension or addition to the master plan.

Section 3. Public Rights

- A. Manner of Addressing the Commission: - Time Limit: Each person addressing the Commission shall step forward to the microphone, shall give his/her name and address in an audible tone of voice for the record and shall limit his/her address to five (5) minutes, unless further time is granted by the Chairman. No person, other than the members of the Commission and the person having the floor, shall be permitted to enter into any discussion, either directly or through the members of the Commission. No questions shall be asked of the Commission members, except through the presiding officer. Except during the public comment period, speakers shall limit their presentation to statements and exhibits relevant to the agenda item under discussion and shall avoid undue repetition of points previously presented to the Commission.
- B. Disruptive Behavior: Any person who willfully disrupts a meeting to the extent that its orderly conduct is made impractical may be requested to leave the meeting.
- C. Presentation of Protests: Interested persons or their authorized representatives may address the Commission for the presentation of protest, petitions or communications relating to any matter over which the Commission has control when the item is under consideration by the Commission.
- D. Written Communication: Written information and materials provided by the project proponent, including graphics, photographs and records of verbal statements, that pertain to Commission meetings, may be submitted to the Commission staff. All such information and materials shall be received a minimum of three (3) working days in advance of the meeting for distribution to all Commission members.

Section 4. Case Number: All materials related to a matter pending before the Commission shall be identified by a specific case number. Materials bearing said number shall constitute the public record of the Commission on the matter.

Section 5. Action Items: In Accordance with the provisions of the Open Meeting Law, action items appearing on the agenda of the Planning Commission shall be (*) designated.

Section 6. Voting: When any vote is called, each member of the Commission shall respond by saying "aye (yes)" or "nay (no)", or abstain, unless a member requests a roll call vote.

Section 7. Tie vote: Any tie vote shall constitute a technical denial of the motion and may be reconsidered by a motion offered by any member who voted on the matter.

Section 8. Conflicts of Interest: A member of the Commission shall not approve, disapprove, vote or otherwise act upon any matter regarding which he has accepted a gift, loan or other financial interest as defined in Article V which would reasonably be effected by his

commitment is his private capacity to the interest of others, or in which he has pecuniary interest, without disclosing the nature and extent of the gift, loan, commitment or interest at the time the matter is considered. A member of the Commission shall consider refraining from approving, disapproving, voting or otherwise acting upon any matter regarding which a member of this immediate family or a relative has accepted a gift, loan or other financial interest as defined in Article V without disclosing the full nature and extent of the gift, loan, commitment or interest at the time the matter is considered. A member of the Commission shall consider refraining from approving, disapproving, voting or otherwise acting upon any matter regarding which a member of this immediate family or a relative has accepted a gift, loan or other financial interest as defined in Article V without disclosing the full nature and extent of the gift, loan, commitment or interest at the time the matter is considered. Any member of the Commission who feels that he has a conflict may request legal advice on how to handle the conflict from the City Attorney's Office, preferably in advance of the meeting.

Section 9. Abstentions: A member who decides to abstain whether because of a conflict of interest or otherwise, must state the reasons for doing so on the record at the time the matter is considered.

Section 10. Rules of Order: All rules of order not herein provided for shall be determined in accordance with Robert's Rules of Order (newly revised).

Article V – Gifts, Loans and Other Financial Interests

Section 1. Gifts or Loans: A gift or loan shall include any gift, loan, service, favor, employment, engagement, emolument or economic opportunity such as sale of goods or services.

Section 2. Financial Interests: Financial interests, which may be direct or indirect, include but are not limited to, owning stock in a corporation, having contract with the City, selling any land, material, supplies or services to the City, or associating with a contractor who supplies the City, which would tend improperly to influence a reasonable person in such a position to depart from the faithful and impartial discharge of public duties.

Article VI – Site Visitations; Neighborhood Meetings

Section 1. Site Visitations: NRS 278.190 (3) permits the Planning Commission to conduct site visitations in the performance of their functions.

Section 2. Neighborhood Meetings: Applicant may hold neighborhood meetings to solicit neighborhood input, provide information to the neighborhood, and attempt to resolve disputes prior to the presentation of their applications. Should the Commissioners wish to attend they shall ensure that the requirements of the Open Meeting Laws are met. The commissioners must also disclose their attendance at the meeting.

Section 3. Procedure: Notice procedures and formal requirements for site visitations by the Commission and neighborhood meetings shall follow those required for a special meeting of the Planning Commission.

Article VII – Amendments of By-Laws

- Section 1. Amendments of By-Laws: The Planning Commission By-Laws may be amended by the Commission as deemed necessary by a majority vote of the Commission members.

Article VIII – Commissioner Attendance at City Council Meetings

- Section 1. Members of the Planning Commission may attend the City Council meetings provided that all requirements of the open meeting law prescribed by NRS Chapter 241 are met.
- Section 2. A member of the Planning Commission shall not comment or express the Opinion of the Planning Commission on Planning Items being considered by the City Council.

RESOLUTION NO. 17-011

**A RESOLUTION OF THE FERNLEY CITY COUNCIL, STATE OF NEVADA
PROVIDING FOR RULES OF PROCEDURE**

WHEREAS, under the authority of NRS 266.240, the Council has authority to adopt its own Rules of Procedure; and

WHEREAS, the Council recognizes and agrees that Rules of Procedures will assist to the benefit and convenience of the Council and the general public; and

WHEREAS, the Council believes Rules of Procedures will help the Council to conduct its affairs in a timely and efficient manner; and

WHEREAS, the Rules and Procedures do not create substantive rights for third parties or participants in proceedings before the Council; and

WHEREAS, the Council reserves the right to suspend or amend the Rules of Procedure whenever a majority of the Council decides to do so; and

WHEREAS, when the Rules of Procedures do not address a procedural issue, the Council may consider the most recent edition of Robert's Rules of Order for guidance; and

WHEREAS, the failure of the Council to strictly comply with the Rules of Procedures shall not invalidate any action of the Council; now therefore,

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF FERNLEY, that the following is hereby adopted by the City Council for the City of Fernley, Nevada:

SECTION 1 - PURPOSE AND BASIC PRINCIPLES

1-1. Purpose of Rules of Procedure

- A. To enable the City of Fernley to transact business fully, expeditiously and efficiently while affording every opportunity to citizens to witness the operations of government;
- B. To protect the rights of each individual Council member;
- C. To preserve a spirit of cooperation among Council members;
- D. To determine the will of the Council on any matter.

1-2. Basic Principles Underlying Rules of Procedure

- A. The business of the Council should proceed in the most efficient manner possible;
- B. Rules of Procedure must be followed consistently.
- C. Council actions should be the result of a decision on the merits and not a manipulation of the procedural rules;
- D. Only one subject may claim the attention of the Council at one time;
- E. Each item presented for consideration is entitled to full and free discussion;
- F. Every member has equal rights to participate and vote on all issues;
- G. Every member must have equal opportunity to participate in decision-making;
- H. The will of the majority must be carried out pursuant to the City's ordinances and resolutions; and
- I. The Council must act as a body.

SECTION 2 - MEETINGS

2-1. When and Where Regular Meetings Are Held

- A. Council meetings and locations will be held as provided in Chapter 11.

2-2. Adjourned or Recessed Meetings

- A. A meeting of the Council is adjourned when the Council has finished its business and is bringing the meeting to a close, with the intention of holding another meeting at a later date. Generally, when a meeting of the Council is adjourned, the next meeting of the Council is preceded by opening ceremonies. A meeting of the Council is recessed when the Council takes a break between sittings and after the recess business is resumed where it left off.
- B. A properly called regular or additional scheduled meeting

may be recessed or adjourned to a time and place certain by a motion made and adopted by a majority of the Council in an open session during the regular or additional scheduled meeting. The motion shall state the time and place where the meeting will reconvene. No further notice need be given of such a recessed or adjourned session of a properly called regular or additional scheduled meeting other than the requirements of the Nevada Open Meeting Law.

2-3. Seating Arrangement

The Mayor shall occupy the center seat on the dais. The remaining members of the Council shall determine their seating arrangement by ward.

2-4. Mayor/Presiding Officer

Unless otherwise designated by the Mayor, the Mayor shall be the presiding officer. The presiding officer shall preserve order and decorum among the members and enforce the rules of the Council and determine the order of business. The presiding officer shall state every question coming before the Council, announce the decision of the Council on all subjects and decide all questions of order, subject to an appeal of the Council, in which event a majority vote of the Council shall govern conclusively to determine such question of order unless otherwise subject to veto procedures outlined in Chapter 266 of Nevada Revised Statutes.

SECTION 3 - PARLIAMENTARIAN

3-1. Parliamentarian

The City Attorney shall serve as the Parliamentarian for the purpose of interpreting these Rules of Procedure and the Nevada Revised Statutes, as amended, as may be directed by the presiding officer or as required as a result of a point of order raised by one or more Council members. If the City Attorney is unavailable, his or her designee or the City Manager shall serve as the Parliamentarian.

3.2. Preservation of Order

A. At meetings of the Council, the presiding officer shall preserve order and decorum. The presiding officer shall have the following powers:

1. To rule on motions in or out of order, including any motion not germane to the subject under discussion or patently offered for obstructive or dilatory purposes;
2. To determine whether a speaker has gone

beyond reasonable standards of courtesy in his or her remarks and to entertain and rule on objections from other members on this ground;

3. To entertain and answer questions of parliamentary law or procedure;

4. To call a brief recess at any time;

5. To adjourn in an emergency.

B. A decision by the presiding officer under any of the first three powers listed above may be appealed to the Council upon motion of any member. Such a motion is in order immediately after a decision under those powers is announced and at no other time. The member making the motion need not be recognized by the presiding officer, and the motion, if timely made, may not be ruled out of order. There are two exceptions to this right of appeal: The presiding officer may adjourn without the Council's vote or appeal in an emergency; and he or she may also call a brief recess without a vote at any time, when necessary to reduce friction among the members. The presiding officer must continue to address the motion upon return.

SECTION 4 - AGENDA

4-1. Preparation

The Clerk shall prepare an agenda for the regularly scheduled meetings pursuant to Resolution #15-012, Agenda Process, incorporated by reference herein.

4-2. Delivery of Agenda

The Council meeting package, including the agenda and related materials, shall be delivered to each member of the Council and the City Attorney the Thursday prior to the regularly scheduled Council meeting.

SECTION 5 - ORDER OF BUSINESS FOR COUNCIL MEETINGS

5-1. Order of Business

A. The Order of Business shall be determined by the Presiding Officer.

5-2. Consent Agenda

A. Upon request of any Council member, an item shall be removed from the Consent Agenda. The item shall be considered separately after adoption of the Consent Agenda.

B. The consent agenda shall be introduced by a motion “to approve,” and shall be considered by the Council as a single item.

C. There may be a short discussion of consent agenda items to answer questions or clarify a matter. There shall be no lengthy debate or discussion of a consent agenda item.

5-3. Citizen Participation

A. Every petition, communication or address to the Council shall be in respectful language, whether verbal or written.

B. Public Presentations:

Public presentations shall be for the purpose of allowing members of the public to present any matter, which, in their opinion, deserves the attention of the Council. They shall not serve as a forum for debate with the Council.

5-4. Prohibited Conduct

A. Persons appearing before the Council will not be allowed to:

1. Use profanity or vulgar language or gestures;
2. Use language which insults or demeans any person or which, when directed at a public official or employee is not related to his or her official duties; however, citizens have the right to comment on the performance, conduct and qualifications of public figures;
3. Make nongermane or frivolous comments;
4. Interrupt other speakers or engage in behavior that disrupts the meeting including but not limited to applause, cheers, jeers, etc.;
5. Engage in behavior that reasonably intimidates others;

B. The presiding officer shall preserve order and decorum at Council meetings as defined by Resolution. If necessary, and as a last resort, and pursuant to Resolution, the presiding officer may expel a member of the City Council from the meeting for the duration of the meeting, for conduct which the presiding officer deems to be exceedingly disruptive or threatening, after the presiding officer has warned the member of the City Council to cease the conduct, and after a recess has been taken to allow the situation to calm down. Expulsion is subject to an appeal of said decision forthwith by a member of the City Council, in which event a concurrence of two-thirds of the Council Members in attendance shall govern and conclusively determine such question of order or decorum

5-5. Public Hearings

A. This section of the agenda shall be for public hearings as required by City, State or Federal law, or as the Council may direct.

B. The presiding officer shall conduct all public hearings.

C. The order of public hearings shall be as follows:

1. The presiding officer shall open the public hearing.

2. Hearing shall begin with a brief presentation from a staff member and/or representative from the cognizant board, authority, commission or committee. The presentation shall summarize the facts about the issue and the staff recommendation. Council members may seek clarification during the presentation.

3. In land use cases, rezoning or conditional use permits, the City Planner shall determine the presentation's course. The land owner/applicant and/or representative shall have an opportunity to present after staff has made their presentation but prior to public input on the matter. The time limit of the applicant's presentation shall be determined by the Presiding Officer.

4. Each speaker must clearly state his or her name. The presiding officer shall set a time limit for each individual speaker. If the speaker represents a group, there shall be a time limit of three minutes. A speaker representing a group shall identify the group at the beginning of his or her remarks. A group may have no more than one spokesperson.

5. After public comments have been received, in a land use case the applicant or the representative of the applicant, at his or her discretion, may respond with a rebuttal. There shall be a three-minute time limit for rebuttal.

6. Upon the conclusion of public comments, or the applicant's rebuttal in a land use case, the presiding officer shall close the public hearing.

D. When a public hearing has been closed by the presiding officer, no further public comment shall be permitted. Council members, however, may direct questions to the applicant, the representative of the cognizant board, authority, commission, committee, to a speaker, or to a staff member for clarification prior to taking any vote, if a vote is in order.

E. Following the close of the public hearing, the presiding officer may entertain a motion to dispose of the issue and the Council may debate the merits of the issue.

5-6. Closed Meetings

A. Closed meetings may only be used as allowed by law, as determined by the City Attorney.

B. No resolution, ordinance, rule, contract, regulation or motion considered in a closed meeting shall become effective until the Council reconvenes in an open meeting and takes a vote of the membership on such action, if any, and which shall have its substance reasonably identified in the open meeting unless allowed by law and approved through the City Attorney.

SECTION 6 - RULES OF PROCEDURE FOR COUNCIL MEETINGS

6-1. Quorum

A. As provided by Chapter 11(F)(2), a majority of the members of the Council must be present to conduct business. A quorum is a majority of the entire membership of the Council, including any vacant seats.

B. Quorum refers to the number of members present at a meeting, not the number of members voting on the issue. If no quorum is present or if a quorum is lost, the Council can only (i) adjourn, (ii) recess, or (iii) take steps to obtain a quorum.

C. If a quorum fails to attend any meeting, those attending may adjourn to such other time prior to the next regular meeting as they may determine and the Clerk shall enter such adjournment in the minute book of the Council and shall notify absent members thereof in the same manner as required for special meetings.

D. If the Nevada ethics code as delineated in NRS 281A prevents some of the members of the Council from participating in an item of business, a majority of the remaining members of the Council shall constitute a quorum.

6-2. Priority in Speaking on the Council

When two or more members of the council wish to speak at the same time, the presiding officer shall name the one to speak.

6-3. Comments, Queries of Council Members

Council members are to observe the following rules during the discussion of agenda items:

A. The presiding officer shall keep discussion germane to the subject. Points of clarification shall be limited to questions only. The presiding officer shall rule other comments out of order.

B. Council members may address questions to the City Manager or staff present at the meeting. Staff members should be at a microphone when answering Council members' questions. All legal questions should be addressed to the City Attorney.

6-4. Action by the Council

A. Items of business will be considered and dealt with one at a time, and a new proposal may not be put forth until action on the preceding one has been concluded.

6-5. Motions

A. Informal discussion of a subject is permitted while no motion is pending.

B. Any Council member may make a motion.

C. Members are required to obtain the floor before making motions or speaking, which they can do while seated.

D. A member may make only one motion at a time.

E. Except for matters recommended by a Council committee, or as otherwise stipulated in these rules of procedure, all motions require a second. A motion dies for lack of a second.

6-6. Substantive Motions

A. A substantive motion is any motion that deals with the merits of an item of business and is within the Council's legal powers, duties and responsibilities.

B. A substantive motion is out of order while another substantive motion is pending.

6-7. Procedural Motions

A. Procedural motions are those motions that the Council may use to "act upon" a substantive motion by amending it, delaying consideration of it, and so forth. Procedural motions are in order while a substantive motion is pending and at other times, except as otherwise noted.

B. In addition to substantive proposals, only the following procedural motions, and no others, are in order. Unless otherwise noted, each motion requires the floor and a second, is debatable, may be amended, and requires a majority of the votes cast, a quorum being present for adoption. Procedural motions are listed below in their order of priority. If a procedural option is not listed below, then it is not available.

1. To Appeal a Procedural Ruling of the Presiding Officer. A decision of the presiding officer ruling a motion in or out of order, determining whether a speaker has gone beyond reasonable standards of courtesy in his or her remarks, or entertaining and answering a question of parliamentary law or procedure may be appealed to the Council which shall decide the matter by majority decision. Such an appeal is in order immediately after such a decision is announced and at no other time. The member making the motion need not be recognized by the presiding officer, the motion does not require a second, and the motion, if timely made, may not be ruled out of order.

2. Motion to Adjourn. In addition to the presiding officer's authority to call a recess or adjourn without a motion, the Council may also make a motion to adjourn. The motion

may be made only at the conclusion of action on a pending substantive matter; it may not interrupt deliberation of a pending matter. The motion is not debatable and cannot be amended.

3. Motion To Take a Brief Recess. This motion allows the Council to pause briefly in its proceedings. A motion to take a brief recess is in order at any time except when a motion to appeal a procedural ruling of the presiding officer or a motion to adjourn is pending.

4. Motion To Suspend the Rules. The Council may suspend provisions of its rules of procedure. The Council may not, however, suspend any provisions of the rules that state requirements imposed by law on the Council. For adoption, a motion to suspend the rules requires unanimous consent or an affirmative vote of two-thirds of members present.

5. Motion To Defer Consideration. The Council may defer action on a substantive motion to a more convenient time. The Council may use the following motions to defer consideration of a substantive motion:

(a) A motion to “table” is used to temporarily set aside an item of business to deal with a more urgent item. Once an item of business has been presented, a motion to table is needed to bring the item back before the public body for discussion.

(b) A motion to “postpone” delays debate on an item of business so that it may be considered at a later date. An item of business may be “postponed definitely,” when it is continued to a definite time or date or “postponed indefinitely” if no future time or date is specified in the motion. A matter that has been postponed to a certain time or day shall be brought up again automatically when that time arrives. When a matter has been postponed indefinitely it takes an affirmative vote of a majority of the Council to bring the matter back for further discussion.

(c) A Motion/Item can be postponed if it does not conflict with regulatory and/or statutory deadlines.

6. Motion to Call the Question. The presiding

officer has authority to call the question. The call of the question is not in order until every member of the Council has had an opportunity to speak.

7. Motion To Amend. Any substantive motion properly on the floor may be amended. An amendment to a motion must be pertinent to the subject matter of the motion. An amendment is improper if adoption of the motion with that amendment added would have the same effect as rejection of the original motion. A proposal to substitute completely different wording for a motion or an amendment shall be treated as a substitute motion. Once a motion has been offered to the council, it is necessary for the person making the original motion to approve any proposed amendment to the motion. It is also up to the person seconding the motion to decide whether or not it should be changed by amendment.

8. Withdrawal of Motion. A motion may be withdrawn by the introducer at any time before it is amended or before the presiding officer puts the motion to a vote, whichever occurs first.

9. Motion to Reconsider. The Council may vote to reconsider its action on a matter. The motion to reconsider must be made before adjourning the meeting, and can only be made by a member who voted with the prevailing side. The motion cannot interrupt deliberation on a pending matter but is in order when action on a pending matter concludes. A motion to reconsider may not be used in a land use decision involving a rezoning or a conditional use permit. A motion to reconsider may not be used in other land use decisions unless the applicant is still present at the current meeting and the motion is reheard at the current meeting.

6-8. Debate

A. The presiding officer shall state the motion and then open the floor to debate. The presiding officer shall preside over the debate according to the following general principles:

1. The maker of the motion is entitled to speak first;

2. A member who has not spoken on the issue shall be recognized before someone who has already spoken;

3. To the extent possible, the debate shall alternate between proponents and opponents of the measure;

4. The presiding officer may participate in the debate prior to declaring the matter ready for a vote;

5. Council members shall not engage in nonpublic communications amongst themselves regarding a motion that is on the floor for debate, including but not limited to electronic communications or whispering.

6-9. Duty to Vote

A. Each member of the Council who is present at a meeting shall be required to vote upon all issues for decision unless prohibited from doing so by Nevada ethics laws.

B. If there is an abstention, it shall be the responsibility of the Clerk to note the abstention and the reason for abstaining for the record.

6-10. Method of Voting

A. After debate, the presiding officer shall ensure that the motion is clear and call for the vote.

B. All questions submitted to the Council shall be determined by a majority vote of the members voting on any such question, unless required by special or general law.

C. Pursuant to NRS Chapter 266, the Mayor is not entitled to vote except in the case of a tie, when the Mayor has a casting vote, except as otherwise provided in NRS 266.200.

D. In order for a motion in a zoning matter to be adopted, it must be approved pursuant to all relevant laws and/or regulations.

E. All questions submitted to the Council for decision shall be decided by a oral vote of “aye” or “nay.” Any member may request a roll call vote. In any case, the presiding officer shall announce the results of the vote.

6-11. Decisions on Points of Order

Any Council member may raise a point of order without being recognized by the presiding officer. The presiding officer shall refer any point of order to the Parliamentarian. The Parliamentarian shall advise the presiding officer who shall

then make a ruling on the point of order.

SECTION 7 - STANDING COMMITTEES ROLES AND GUIDELINES

7-1. Standing Committees Roles and Guidelines

The roles and operating guidelines for the various city committees shall be as adopted by a majority of the Council, unless otherwise indicated in the municipal code.

SECTION 8 - GENERAL OPERATING POLICY

8-1. Broadcasting Council Meetings

The Council shall make reasonable efforts at all regular meetings of the Council to broadcast the meetings live on the internet. Copies of the broadcast may be obtained by the public from the City Clerk's office.

8-2. Numbering and Indexing of Resolutions and Ordinances

It shall be the responsibility of the Clerk to number and index all resolutions and ordinances adopted by the Council. The resolutions shall be numbered consecutively, and use the last two digits of the calendar year. Example: for the first resolution of 2017, the resolution number would be shown as Resolution #17-001. Ordinances shall also be numbered consecutively. The City Clerk shall keep a binder at the City Clerk's office, as well as an on-line binder accessible by the public, which contains all resolutions in one place, to the extent such resolutions passed prior to June 1, 2017, are reasonably available. The City Clerk shall make his or her best efforts to compile a comprehensive and complete set of said resolutions to be placed in said binder, both hard copy and electronic.

8-3. Minutes of Council Meetings

The minutes of the Council meetings shall reflect the official acts of the Council. They shall provide a summary of discussion and record Council votes. Minutes shall be considered for approval within a reasonable time after the meeting they record.

8-4. Amending the Rules of Procedure

These rules may be amended at any regular meeting or at any properly called special meeting that includes amendment of the rules as one of the stated purposes of the meeting. Adoption of an amendment shall require an affirmative vote of a majority

of the Council.

8-5. Special Rules of Procedure

The Council may adopt its own special rules of procedure to cover any situation that are not adequately addressed in these Rules of Procedure. Adoption of a special rule of procedure shall require an affirmative vote of a majority of a quorum of the Council.

PASSED AND RESOLVED this 7th day of June, 2017, by the City Council of the City of Fernley, Nevada.

ACKNOWLEDGED AND APPROVED:

Dated:



ROY EDGINGTON

5 July 2017
Mayor



Ward One

July 6, 2017



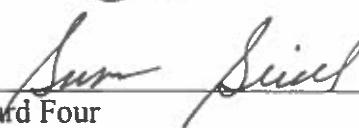
Ward Two

July 5 2017



Ward Three

July 6th 2017



Ward Four

July 21, 2017



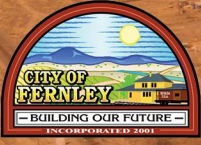
Ward Five

July 6, 2017



Kimberly Swanson, City Clerk

July 24, 2017



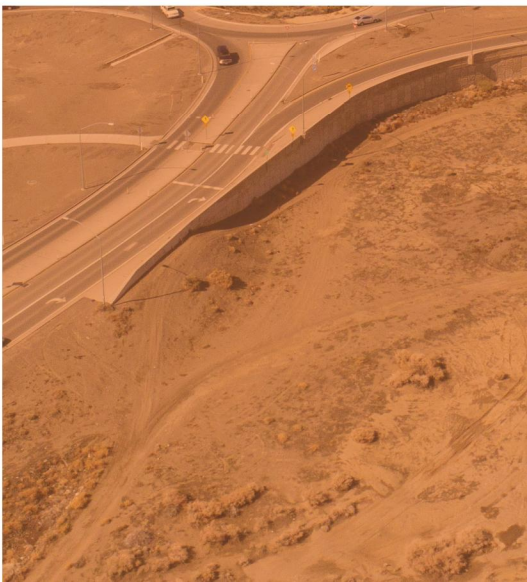
Kimley»Horn

TMP

Transportation Master Plan

July 2020

City of Fernley Transportation Master Plan



REPORT

FOR

CITY OF FERNLEY TRANSPORTATION MASTER PLAN

Prepared for:

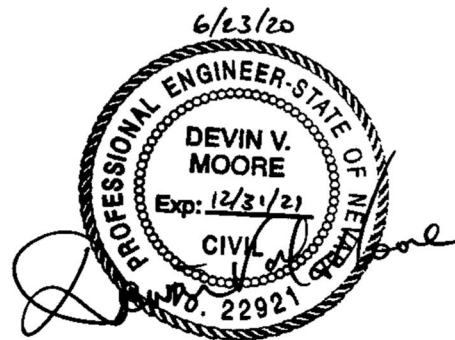


City of Fernley
595 Silverlace Boulevard
Fernley, Nevada 89408
775-784-9810

Prepared by:

Kimley»Horn

Kimley-Horn and Associates, Inc.
5370 Kietzke Lane
Suite 100
Reno, Nevada 89511
775-200-1979



This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

© July 2020
192100000

EXECUTIVE SUMMARY

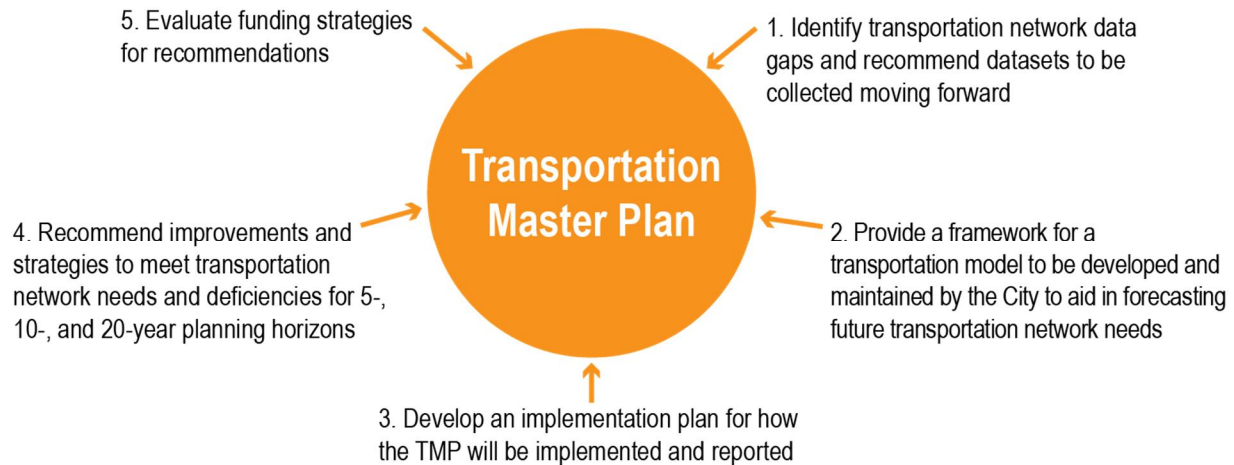
The City of Fernley (City) Transportation Master Plan (TMP) has been prepared to reflect the City's growth, changing trends in transportation and the surrounding area, and the corresponding existing and future transportation needs in Fernley.

The city's transportation network includes both existing and future roadways, parking, transit, bicycle, and pedestrian facilities. This TMP reviews and analyzes the existing and future conditions of the city's multimodal transportation network and recommends enhancements to the transportation system.

The goals of the City of Fernley TMP are to:



The City of Fernley TMP goals are achieved through the following activities:



Existing Conditions and Data, Data Gaps, and Needs Assessment

The Existing Conditions and Needs Assessment identified transportation needs, based on a review of:

- Existing conditions information and data provided by the City of Fernley and State of Nevada
- Transportation plans, studies, and reports previously completed by City of Fernley that contain recommendations to improve the city's transportation network

- Transportation plan, studies, and reports previously completed by surrounding jurisdictions that provide additional context as to how the regional and statewide transportation network impacts the City of Fernley

From the existing conditions and needs assessment, recommendations are made for data collection safety, and connectivity.

Data Collection

The TMP recommends that City of Fernley and surrounding jurisdictions continue to collect and store transportation-related data to support strategic decision-making.

Continued data collection will inform development of a City travel demand model (TDM). As part of this TMP, and in anticipation of a TDM for the City, a simple travel demand/transportation network model was created for Fernley. This model allows the City to track development impacts to the transportation system and to project future transportation needs.

Crash Data

Crash data shows that the following locations experience a high frequency of crashes:

- US 95A between I-80 and the Main Street Roundabout (US 50A/US 95A/SR 828)
- Intersection of US 50 and Nevada Pacific Parkway
- Intersection of Main Street and US 50A/US 95A

In order to improve safety throughout the city, recommended safety improvements are provided in **Chapter 6**.

Network Connectivity

The review of existing conditions identified a lack of network connectivity within the city, as well as regionally to the Reno-Sparks metropolitan area and to the Tahoe-Reno Industrial Center.

In order to improve transportation network connectivity throughout the city, recommended improvements to the transportation network are provided in **Chapter 6**.

Complete Streets Analysis

An assessment of the city's existing motorized and non-motorized facilities identified mobility challenges, opportunities, and safety enhancements. Analyses of roadways, intersections, bicycle and pedestrian facilities, and network connectivity were completed. The results of these analyses are used to draft recommendations for multimodal transportation network improvements for the City. The analyses provide additional depth to help identify and prioritize improvements.

Recommended improvements to the City's multimodal transportation network are provided in **Chapter 6**.

Future Transportation Trends

Evolving transportation technologies are key to connecting the people who live, work, and visit Fernley. The City must adapt to the changing landscape of transportation innovation, which includes ridesharing, connected and autonomous vehicles, public transit, and micromobility options.

In addition, technology can be used to collect, analyze, and disseminate data and information about transportation in the city.

Industry trends and technologies and their potential impact to the city's transportation network, as well as recommendations, are provided in this TMP.

Transportation Analysis Scenarios

Three population growth and development scenarios were evaluated with a travel analysis tool developed as part of the TMP. Each scenario assumed different levels of growth and development throughout the city.

This analysis helped identify improvements and strategies to alleviate anticipated growth in the city and accommodate traffic long into the future.

Recommended Improvements, Strategies, and Cost Estimates

A set of improvements and strategies are recommended to help the City meet the needs of the transportation system for the 5-, 10-, and 20-year planning horizons.

While five-year planning horizon recommended improvements are specific to roadways and intersections, 20-year planning horizon recommendations are strategies to be applied to the entire transportation network.

For 10 of the recommended planning horizon improvements, a planning-level cost estimate was prepared. **Table E-1** includes the 10 recommended improvements and the associated cost estimates.

The TMP also presents other maintenance considerations, strategies, and additional improvements not included in the planning horizon-year recommendation. The improvements listed in **Table E-2** should be reviewed annually as the transportation network continues to expand and as prioritization may change to re-categorize or introduce new projects.

Table E-3 lists overall strategies that should be considered to aid the City to develop an efficient multimodal transportation network.

Moving Forward

Effectiveness of the TMP is only as good as its implementation. The recommendations and strategies recommended in the TMP require actions by City staff, partnering agencies, and residents.

Partnering is vital for several of the recommended transportation improvements. Lead agencies or stakeholders are identified for the recommended transportation improvements. Coordination for many of the recommended improvements and strategies may take long periods of time and should begin as soon as possible.

The implementation of the improvements and strategies recommended in the TMP is contingent on the availability of funding for design and construction of the transportation improvement projects.

As new opportunities, issues, and public comment arise, recommendations may be changed to accommodate the needs of the City of Fernley and its residents and visitors.

Table E-1 – Planning-Level Cost Estimates for Recommended Improvements

Project Name	Improvement Type	Project Description	Planning Horizon Year	Planning-Level Cost Estimate
Lead Agency: City of Fernley				
Park-and-Ride	Transit	Conduct a park-and-ride study to identify the necessity of, the preferred location for, and construct a park-and-ride facility for commuters to the Tahoe Reno Industrial Center and the Reno-Sparks area	2025	\$399,000 (50-space lot); \$213,000 (25-space lot)
Farm District Road Multi-Use Path	Multi-Use Path	Extend the Farm District Road multi-use path from East Valley Elementary School to US 50 (Phase 4) (existing programmed NDOT project LY20140001 extends the path 1.75 miles from Crimson Road to Jasmine Lane, and Phase 3 of the project extends the path to East Valley Elementary School)	2025	\$1,099,000
Sage Street Connectivity	Roadway Capacity and Safety	Construct paved connection over the Truckee Canal to provide secondary access to Sage Street neighborhood	2030	\$2,350,000 (Carol Way); \$2,119,000 (Stock Lane)
Desert Shadows Improvements	Paving; New Roadway; Multi-Use Path	Pave Desert Shadows Lane and provide a multi-use path for the extents; consider project phasing from west to east	2030	\$14,785,000
Lead Agency: NDOT				
Main Street Improvements	Bicycle Facilities	Extend bicycle lanes on Main Street from Miller Lane to Marie Drive	2025	\$443,000
	Crosswalks	Upgrade 10 existing marked crosswalks with additional signage and painted roadway markings that cross Main Street/US 50 from Miller Lane to Hardie Lane		
	Pedestrian Signals	Provide/reconstruct up to two crossings along Main Street (US 50A/US 95A) downtown to be signalized/flashing		
Cottonwood/US 50A/US 95A Signal	Traffic Signal	Coordinate with NDOT to signalize the Cottonwood Lane/US 50A/US 95A intersection	2025	\$478,000
Main Street Roundabout Improvements	Intersection Improvement	Evaluate and redesign the Main Street Roundabout for improved operations, capacity, and safety	2025	\$7,418,000 (two-lane); \$5,244,000 (one-lane)
US 95A Improvements	Roadway Capacity and Safety	Assess capacity and provide improvements to US 95A between the Main Street Roundabout and I-80 to provide increased capacity and safety	2025	\$1,567,000
Railroad Underpass Improvements	Roadway Capacity and Safety	Widen the railroad underpass on Main Street; consider improvements to Main Street between Pilot Road and Miller Lane (approximately 0.75 miles) for increased capacity and safety	2030	\$23,325,000
Bicycle Improvements (West)	Bicycle Facilities	Improve Main Street/SR 427 to provide bicycle facilities from Fernley to the Lyon County line to connect eventually to the proposed future Tahoe Pyramid Trail	2030	\$895,000

Table E-2 – Other Recommended Improvements

Project Name	Improvement Type	Project Description
Fernley Transit System	Transit	Consider scheduled transit service and facilities throughout the city (bus/shuttles) to service the following locations: - Residential center of the city (Cottonwood Lane, Westerlund Lane, Jenny's Lane) - Main Street (US 50A/US 95A) downtown area - Future North Fernley Future Development Area (FDA) employment area - Future Southwest Fernley FDA residential area - Industrial/commercial area north of US 50 between US 95A and proposed Nevada Pacific Parkway
Mission Way/Vine Street Improvements	Roadway Capacity and Safety	Connectivity of the Veteran's Parkway/Mission Way area; secondary access
US 50A/US 95A Improvements (South)	Roadway Capacity and Safety	Assess capacity and consider improvements to US 50A/US 95A from Main Street to the south Fernley City limits to provide increased capacity and safety
Various Intersections	Intersection Control Evaluations	The following intersections should be monitored for traffic growth as they may warrant traffic signals or other intersection control in the future: - I-80 Ramps/Nevada Pacific Parkway - Nevada Pacific Parkway/Stanley Drive (SR 343) - Multiple locations along Nevada Pacific Parkway, pending future development - Nevada Pacific Parkway/E. Newlands Drive - US 50/Nevada Pacific Parkway - US 50/Desert Rose - US 50/Farm District Road (east connection, not at the Main Street Roundabout) - US 50/River Ranch Road (currently planned for signalization by NDOT) - Farm District Road/Wilson Way - Farm District Road/Winnies Lane - Farm District Road/Desert Lakes Drive - US 50A/US 95A/Shadow Lane - US 50A/US 95A/Sage Drive - Main Street/Pilot Road

Table E-2 – Other Recommended Improvements (Continued)

Project Name	Improvement Type	Project Description
Various Roadway Connections	Connectivity, Roadway Capacity, and Safety	The following locations were identified to enhance network connectivity: - Logan Lane: Extend east and connect to Vine Street. - Front Street: Pave and extend west to West Main Street. Create smoother connection between Dallas Street and North West Street. - Vonnie Lane: Pave and extend north to Main Street. - Winnies Lane (South of SR 828): Pave and extend to the north to connect to Reese River Road. - Westerlund Lane: Pave and connect eastern and western segments. Connect to Farm District Road to the east and to Silver Lace Boulevard to the north. - Browne Lane: Pave and connect to Clover Lane to the west. - Westward Lane: Extend south to Browne Lane - Fort Sutter Boulevard: Extend south to Clover Lane. - Bridle Path Way/Country Ranch Road: Extend north to connect development to US 50. - Round Up Road: Extend east to connect with new development. - Nevada Pacific Parkway: Connect northern and southern sections across the railroad and US 50. - Rancho Road: Extend east to connect to Jenny's Lane - Rose Lane: Extend the segment east to connect with Cottonwood Lane and the intersection of US 50A/US 95A.
Various Surface Improvements	Roadway Capacity and Safety	The following roadways are recommended for surface improvements: - Andy Way: Pave to provide east-west connection between Jenny's Lane and Winnies Lane. - Gustafson Road: Pave to provide a reliable eastern connection between Desert Shadows Lane and Farm District Road. - Red Rock Road: Pave northern extension to US 50.

Table E-2 – Other Recommended Improvements (Continued)

Project Name	Improvement Type	Project Description
Various Dead-End Improvements	Connectivity, Roadway Capacity, and Safety	The following locations were identified as significant “dead-end” neighborhoods that would benefit from increased connectivity: ▪ Sage Street Development: Provide access across the canal to Main Street. Connect to any future developments south of the neighborhood. Create access from back of neighborhood to any future connector roads in southwest Fernley. ▪ Jenny's Lane Neighborhood: Create roadway access across the canal to Desert Shadows Lane via Jenny's Lane or Winnies Lane, which would better accommodate larger traffic volumes and emergency response vehicles. Alternatively, create canal access via Clover Lane in order to reduce neighborhood cut-through traffic, but this would require right of way acquisition and substantial roadway improvements. ▪ Wilson Way Neighborhood: Create bicycle and pedestrian access to the high school via a bridge across the canal. The Desert Shadows Lane/Valley View Drive proposed connection is a potential location. ▪ Chisholm Trail Area: Create alternate roadway connection to this developing area, potentially to Newlands Drive to the north or east to the proposed Nevada Pacific Parkway extension. ▪ Others: There are a number of smaller areas that provide one access point, or limited access options including the residential area north of Freemont Street and the Desert Lakes residential development which could be similarly benefitted by additional connections to the transportation network.
Various Active Transportation Improvements	Active Transportation, Connectivity	▪ Improve SR 427 to provide a bicycle facility to connect Fernley to Wadsworth. ▪ Provide a bicycle facility along Farm District Road. ▪ Widen the railroad underpass on SR 427 entering west Fernley to remove a pinch point for pedestrians and bicycles. ▪ Widen shoulders between Silver Springs and Fernley. ▪ Install a bicycle lane along Main Street (US 50A/US 95A) in Fernley. ▪ Add a bicycle lane on US 50A/US 95A from Main Street to Royal Oaks Drive. ▪ Install bicycle wayfinding signage along US 50 throughout the entire county. ▪ Install a paved shoulder along US 50 throughout the entire county.

Table E-3 – Other Strategies

Project Name	Improvement Type	Project Description
Access Management Plan	Study/Plan	Develop and adopt an Access Management Policy
Impact Fees	Study/Plan	Develop traffic impact fees for new developments to help generate funds for infrastructure improvements
Safety Evaluation	Routine Evaluation	Regularly evaluate high-crash-concentration areas/intersections for safety improvements
Active Transportation Standards	Design Standards Review	Incorporate active transportation planning and facilities into City standards , new developments, and asset management
Development Review	Policy	Avoid permitting dead-end subdivisions or development to maximize network connectivity for the transportation system
Intersection Control Evaluations	Routine Evaluation	Regularly evaluate high-volume intersections for proper intersection treatments (signalization, roundabout installation, optimized timing, crossing enhancements, etc.)
SR 828 Adoption	Evaluation	City should consider adopting SR 828 from the Nevada Department of Transportation (NDOT) in the case that a multimodal facility along Desert Shadows Lane proves infeasible
Travel Analysis Tool	Routine Evaluation	Maintain and update the City's travel analysis tool housed within Synchro 10 Traffic Simulation Software annually
Modeling Evaluation	Partnership	Continue to evaluate incorporating City of Fernley data into the RTC Washoe travel demand model (TDM) and/or pursue a northern Nevada Regional TDM
Roadway Functional Classification	Policy	Update the City roadway functional classifications to reflect the classification definitions and categories as found in the FHWA procedures and used by both NDOT and FHWA and coordinate future modifications with NDOT. The functional classification map should also be updated in the 2018 Comprehensive Master Plan (CMP).
Data Collection/ Development	Data Management	The following data should be considered for collection/development to aid in making strategic decisions in the future regarding the transportation network and infrastructure in the city: - Active transportation facilities (pedestrian and bicycle) - Transit facilities and ridership (when a transit system is initiated) - Intersection operations - Sidewalk inventory - Annual traffic counts - Socio-economic data including population and employment - Communications network/Intelligent Transportation Systems (ITS) related infrastructure - Pedestrian facility use data (when and where traffic counts are required per City of Fernley design standards for proposed developments)
Bicycle/ Pedestrian Plan	Study/Plan	Establish and adopt a plan to identify, evaluate, and prioritize bicycle and pedestrian facilities as well as inspect existing facility condition.
Micromobility Policy	Policy	Modify ordinance and policy to accommodate these devices based on best practices on and off sidewalks.

TABLE OF CONTENTS

1. INTRODUCTION	1
1.1 Project Background.....	1
1.2 TMP Goals and Objectives	1
1.3 Report Outline.....	2
2. EXISTING CONDITIONS AND DATA.....	3
2.1 Literature Review Summary.....	3
2.2 Existing Data.....	4
2.2.1 City of Fernley Data	4
2.2.2 State of Nevada Data.....	4
2.3 Crash Data Analysis	4
2.4 Functional Class Review.....	10
2.5 Traffic Count Data.....	12
2.5.1 Existing Conditions Level of Service Analysis	14
2.5.2 Traffic Signal Warrants.....	15
2.6 Origin-Destination Data and Analysis Summary.....	15
2.7 Pavement Data	16
2.8 Active Transportation Facilities	16
2.9 Data Gaps.....	20
2.10 Travel Demand Model.....	20
2.11 Public Comment.....	21
3. COMPLETE STREETS EVALUATION	23
3.1 Roadway Corridor Evaluation.....	23
3.1.1 Assessment	23
3.1.2 Key Issues	23
3.1.3 Recommendations and Strategies	24
3.2 Intersection Evaluation.....	27
3.2.1 Assessment	27
3.2.2 Key Issues	27
3.2.3 Recommendations and Strategies	28
3.3 Bicycle Evaluation.....	29
3.3.1 Assessment	29
3.3.2 Key Issues	30
3.3.3 Recommendations and Strategies	31
3.3.3.1 Roadway Improvements.....	31
3.3.3.2 Intersection Improvements	31

3.4	Pedestrian Evaluation	33
3.4.1	Assessment	33
3.4.2	Key Issues	33
3.4.3	Recommendations and Strategies	33
3.5	Network Connectivity Evaluation.....	34
3.5.1	Assessment	34
3.5.2	Key Issues	34
3.5.2.1	Union Pacific Railroad	34
3.5.2.2	Interstate 80	34
3.5.2.3	Truckee Canal	37
3.5.2.4	Dead-End Residential Developments	37
3.5.2.5	Unpaved Roads.....	37
3.5.2.6	Mobility Challenges.....	37
3.5.3	Recommendations	37
3.5.3.1	Road Connections.....	37
3.5.3.2	Surface Improvements	39
3.5.3.3	Dead-End Neighborhoods	39
3.5.3.4	Traffic Calming Strategies	42
4.	FUTURE TRANSPORTATION TRENDS	43
4.1	Ridesharing.....	43
4.2	Connected and Autonomous Vehicles	43
4.3	Transit.....	44
4.3.1	Park-and-Ride Lots	45
4.3.2	Bus Service.....	45
4.4	Micromobility.....	45
5.	TRANSPORTATION ANALYSIS SCENARIOS.....	46
5.1	Growth and Development Scenario 1 – Standard Growth	46
5.2	Growth and Development Scenario 2 – High Growth	47
5.3	Growth and Development Scenario 3 – Industrial Focused Growth.....	49
6.	RECOMMENDED IMPROVEMENTS AND STRATEGIES.....	51
6.1	Recommended Improvements	51
6.2	Public Transit Network Concept.....	57
6.3	Other Maintenance Considerations	57
6.4	General Strategies	58
6.5	Other Recommended Improvements	59
6.6	Planning-Level Cost Estimates	61

6.7 Other Strategies.....	63
7. FUNDING STRATEGIES	65
7.1 Existing Funding Sources	65
7.2 Additional Funding Options.....	65
7.3 Federal Funding Programs for Transportation Improvements	65
7.4 MPOs and other Partnerships.....	66
7.5 Transit Funding and Implementation.....	66
7.5.1 Current Transit Service	66
7.5.2 Other Transit.....	67
7.6 Funding Recommendations	67
7.6.1 Funding for Future Developments.....	67
7.6.2 Funding for Road Construction and Improvements	67
7.6.3 Other Recommendations	68
8. MOVING FORWARD.....	69
8.1 Implementation Plan	69
8.2 Funding Strategies and Options Summary.....	69
8.3 Next Steps	70

LIST OF APPENDICES

Appendix A	Literature Review
Appendix B	Traffic Count Data
Appendix C	Existing Conditions Intersection Analysis Reports
Appendix D	Signal Warrant Analysis Results
Appendix E	Origin-Destination Data and Analysis
Appendix F	Public Engagement Summary Memorandum
Appendix G	Roadway Corridor Capacity Analysis
Appendix H	Bicycle Level of Stress Analysis Results
Appendix I	NDOT 2018 Annual Traffic Report Data
Appendix J	Scenario 1 Standard Growth Analysis Reports
Appendix K	Scenario 2 High Growth Analysis Reports
Appendix L	Scenario 3 Industrial Focused Growth Analysis Reports
Appendix M	Funding Strategies and Options
Appendix N	Planning-Level Cost Estimate Details
Appendix O	Recommended Improvement Project Summaries

LIST OF FIGURES

Figure 1 – City of Fernley Crash Summary (2015-2017)	5
Figure 2 – City of Fernley Crashes (2015-2017).....	6
Figure 3 – Areas with High Crash Concentrations (2015-2017).....	7
Figure 4 – City of Fernley Injury Crashes (2015-2017).....	8
Figure 5 – City of Fernley Bicycle and Pedestrian Crashes (2015-2017).....	9
Figure 6 – City of Fernley Roadway Functional Classification	11
Figure 7 – City of Fernley Annual Average Daily Traffic (AADT)	13
Figure 8 – City of Fernley Pavement Condition Index Data (2017)	18
Figure 9 – City of Fernley Existing and Proposed Active Transportation Facilities.....	19
Figure 10 – Capacity Analysis/LOS Results	26
Figure 11 – Bicycle Level of Traffic Stress Analysis	32
Figure 12 – Network Connectivity.....	36
Figure 13 – Network Connectivity Recommendations	41
Figure 14 – 5-year Planning Horizon Recommended Improvements (2025)	54
Figure 15 – 10-year Planning Horizon Recommended Improvements (2030)	55
Figure 16 – 20-year Planning Horizon Recommended Improvements (2030)	56

LIST OF TABLES

Table 1 – City of Fernley Crash Summary (2015-2017)	4
Table 2 – Level of Service Definitions	14
Table 3 – Level of Service Analysis Results.....	15
Table 4 – Summary of Traffic Control Signal Warrant Results.....	15
Table 5 – Level of Traffic Stress.....	29
Table 6 – Scenario 1, Standard Growth Conditions Analysis Results.....	47
Table 7 – Scenario 2, High Growth Conditions Analysis Results.....	48
Table 8 – Scenario 3, Industrial-Focused Growth Conditions Analysis Results	49
Table 9 – 5-year Planning Horizon Recommended Improvements (2025).....	52
Table 10 – 10-year Planning Horizon Recommended Improvements (2030).....	53
Table 11 – 20-year Planning Horizon Recommended Improvements (2040).....	53
Table 12 – Other Recommended Improvements.....	59
Table 13 – Planning-Level Cost Estimates.....	62
Table 14 – Other Strategies	63

LIST OF ACRONYMS

AADT	Average Annual Daily Traffic
ADA	Americans with Disabilities Act
ATMS	Advanced Traffic Management Systems
BUILD	Better Utilizing Investments to Leverage Development
CAA	Clean Air Act
CAMPO	Carson Area Metropolitan Planning Organization
CAV	Connected and Autonomous Vehicle
CDBG	Community Development Block Grant
CFR	Code of Federal Regulations
City	City of Fernley
CMP	Comprehensive Master Plan
FDA	Future Development Area
FHWA	Federal Highway Administration
FLAP	Federal Lands Access Program
FTA	Federal Transit Administration
GIS	Global Information System
GPS	Global Positions Systems
HCM	Highway Capacity Manual
HSIP	Highway Safety Program
IP	Internet Protocol
ITS	Intelligent Transportation Systems
JAC	Jump Around Carson
LOS	Level of Service
LTS	Level of Traffic Stress
MPA	Metropolitan Planning Area
MPO	Metropolitan Planning Organization
MUTCD	Manual on Uniform Traffic Control Devices
NDOT	Nevada Department of Transportation
NHS	National Highway System
NRS	Nevada Revised Statutes
NTCIP	National Transportation Communications for Intelligent System Protocol
O-D	Origin-destination
PCI	Pavement Condition Index
PLANA	Planning and Needs Assessment
PMP	Pavement Management Plan
ROUTES	Rural Opportunities to Use Transportation for Economic Success
RSA	Road Safety Assessment
RTC	Regional Transportation Commission
RTC Lyon	Regional Transportation Commission of Lyon County
RTCSNV	Regional Transportation Commission of Southern Nevada
RTC Washoe	Regional Transportation Commission of Washoe County
SAD	Special Assessment District
SRTS	Safe Routes to School
STBG	Surface Transportation Block Grant
STIP	Statewide Transportation Improvement Program

LIST OF ACRONYMS (CONTINUED)

TAC	Technical Advisory Committee
TAP	Transportation Alternative Program
TDM	Travel Demand Model
TMP	Transportation Master Plan
TMPO	Lake Tahoe Metropolitan Planning Organization
TRIC	Tahoe Reno Industrial Center
UCED	University Center for Economic Development
UNR	University of Nevada, Reno
UPRR	Union Pacific Railroad



CHAPTER 1 - INTRODUCTION

The City of Fernley (City) Transportation Master Plan (TMP) has been prepared to reflect the City's growth, changing trends in transportation and the surrounding area, and the corresponding existing and future transportation needs in Fernley.

1.1 Project Background

The 2018 City of Fernley Comprehensive Master Plan recommended development of a TMP to account for the significant growth anticipated for the City and surrounding areas.

The City's transportation network includes both existing and future roadways, parking, transit, bicycle, and pedestrian facilities. This TMP reviews and analyzes the existing and future conditions of the city's multimodal transportation network and recommends enhancements to the transportation system.

1.2 TMP Goals and Objectives

The goals of the City of Fernley TMP are to:



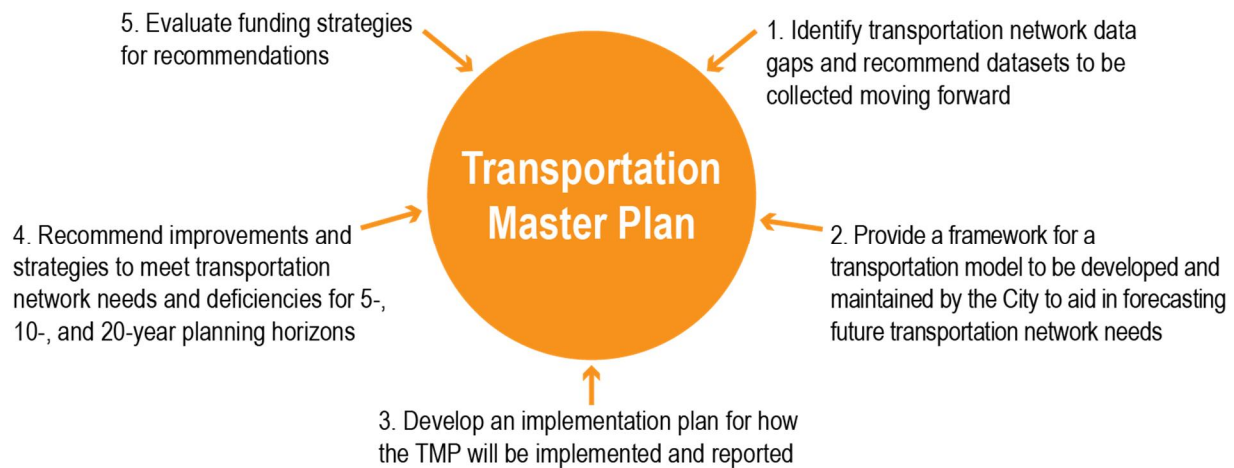
Forecast future transportation needs and define corresponding infrastructure for capital improvement programming



Understand the impact of proposed developments on the City's transportation network



The objectives of the City of Fernley TMP are to:



1.3 Report Outline

This report is organized into the following chapters:

- **Chapter 1** presents an introduction to the TMP, along with goals and objectives.
- **Chapter 2** summarizes the existing conditions analysis, existing data, as well as data gaps. This chapter also provides a summary of the public comment received regarding this TMP.
- **Chapter 3** provides detail of the complete streets evaluation including roadways, intersections, multimodality, and overall transportation network key issues and recommendations.
- **Chapter 4** reviews future transportation trends and their applicability to the City of Fernley.
- **Chapter 5** presents different transportation analysis scenarios and their findings regarding the transportation network.
- **Chapter 6** presents recommended improvements and strategies for 5-, 10-, and 20-year planning horizons, general strategies, and other recommended improvements for the city's transportation network along with planning-level cost estimates for selected recommended improvements to the transportation network.
- **Chapter 7** reviews current and potential future funding sources, strategies, options, and recommendations for transportation improvements
- **Chapter 8** summarizes items to consider moving forward with the TMP including an implementation plan and funding strategies.



CHAPTER 2 – EXISTING CONDITIONS AND DATA

This chapter assesses existing transportation conditions and data in the City. The assessment reviews existing literature pertinent to the City of Fernley and maps and analyzes existing conditions data available from the City and State.

2.1 Literature Review Summary

Previous transportation plans, studies, and reports were reviewed, so that the TMP can build upon them as appropriate. In addition, a review of surrounding jurisdictions' previously completed studies and plans provides additional context of the impact of the regional and statewide network of transportation facilities to the City of Fernley.

A summary of findings from each literature reviewed is provided in **Appendix A**.

Fernley Specific Literature

Community Assessment for the City of Fernley, Nevada (2019)
City of Fernley ADA Survey and Inventory Report (2019)
City of Fernley Comprehensive Master Plan (2018)
Downtown Fernley Revitalization Planning and Phase 2 Studies (2014)
City of Fernley Safe Routes to School Plan (2011)
City of Fernley Bicycle Safety Master Plan (1999)

Regional and Statewide Literature

NDOT Inter County and Regional Transit Plan (ongoing)
One Nevada Transportation Plan (2018)
Lyon County Bicycle Plan (2016)
Nevada Statewide Bicycle Plan (2013)



2.2 Existing Data

Existing data provided by the City of Fernley was analyzed. The assessment of existing transportation conditions and data also helps the City to understand what data should continue to be collected, and what additional data may need to begin to be collected.

2.2.1 City of Fernley Data

The City currently maintains the following data:

- Roadway information and centerlines
- Parcel information
- Transportation right-of-way boundaries
- Subdivision boundaries
- Parks
- Pedestrian ramp locations
- Functional classification from the 2018 Comprehensive Master Plan
- Pavement condition index (PCI) ratings
- Pending residential construction

2.2.2 State of Nevada Data

The Nevada Department of Transportation (NDOT) collects data specific to the City of Fernley. State data includes:

- Historical crash data
- Annual average daily traffic (AADT) volumes

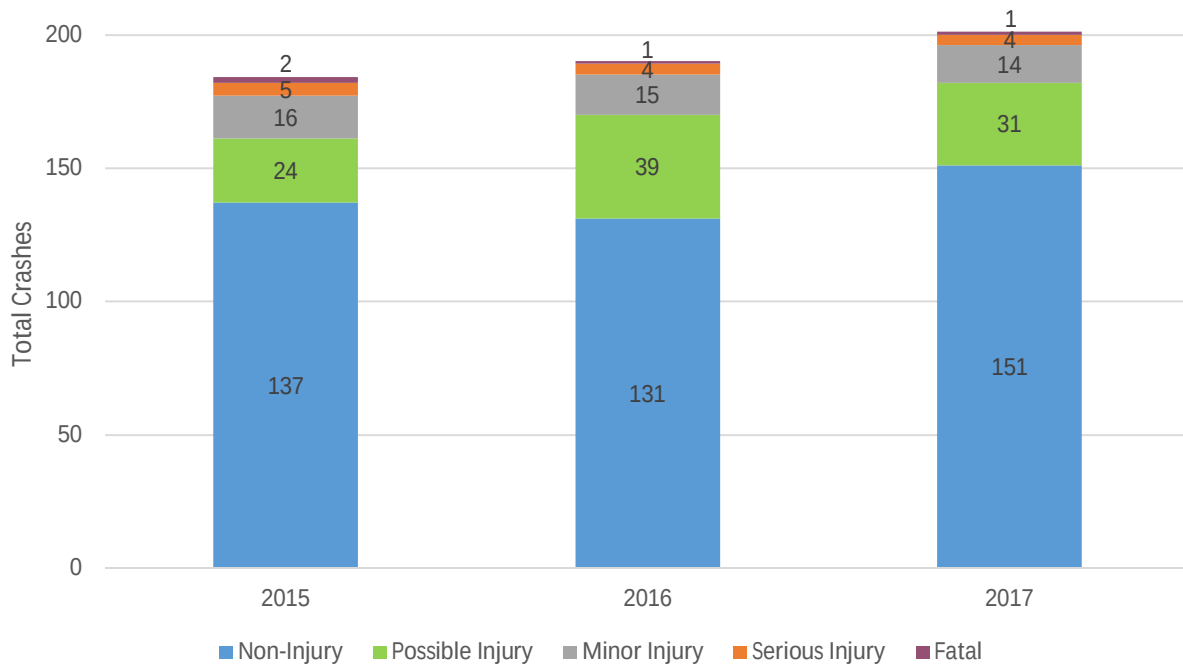
2.3 Crash Data Analysis

Crash data was provided by NDOT for the three most recent years available, 2015-2017. During the three-year period, there were a total of 575 reported crashes within the City of Fernley. Of these, 419 (73%) were non-injury crashes, 94 (16%) were possible injury crashes, 45 (8%) were minor injury crashes, 13 (2%) were serious-injury crashes, and 4 (<1%) resulted in a fatality. A summary of the crash data by severity type and year is shown in **Table 1** and **Figure 1**. Crash location data is shown in **Figure 2** and **Figure 3**.

Table 1 – City of Fernley Crash Summary (2015-2017)

Year	Fatal	Serious Injury	Minor Injury	Possible Injury	Non-Injury	Total
2015	2	5	16	24	137	184
2016	1	4	15	39	131	190
2017	1	4	14	31	151	201
Total	4	13	45	94	419	575

Source: NDOT Crash Data (2015-2017)



Source: NDOT Crash Data (2015-2017)

Figure 1 – City of Fernley Crash Summary (2015-2017)

Mapping the injury crashes as shown in **Figure 4** helps to identify areas with higher crash densities throughout the city and will be valuable moving forward as recommendations are made to improve safety in the transportation network. Observations are:

- US 95A between I-80 and the Main Street Roundabout shows a high density of injury crashes.
- The intersection of US 50 and Nevada Pacific Parkway shows high crash density.
- The intersection of Main Street and US 50A/US 95A South shows high crash density.

Bicycle and pedestrian crashes are mapped in **Figure 5**. From 2015 through 2017, there were a total of five injury bicycle or pedestrian crashes throughout Fernley, with one of those crashes resulting in an incapacitating injury to a pedestrian. Three additional bicycle or pedestrian crashes which did not result in an injury occurred in that same timeframe which are shown on the figure.

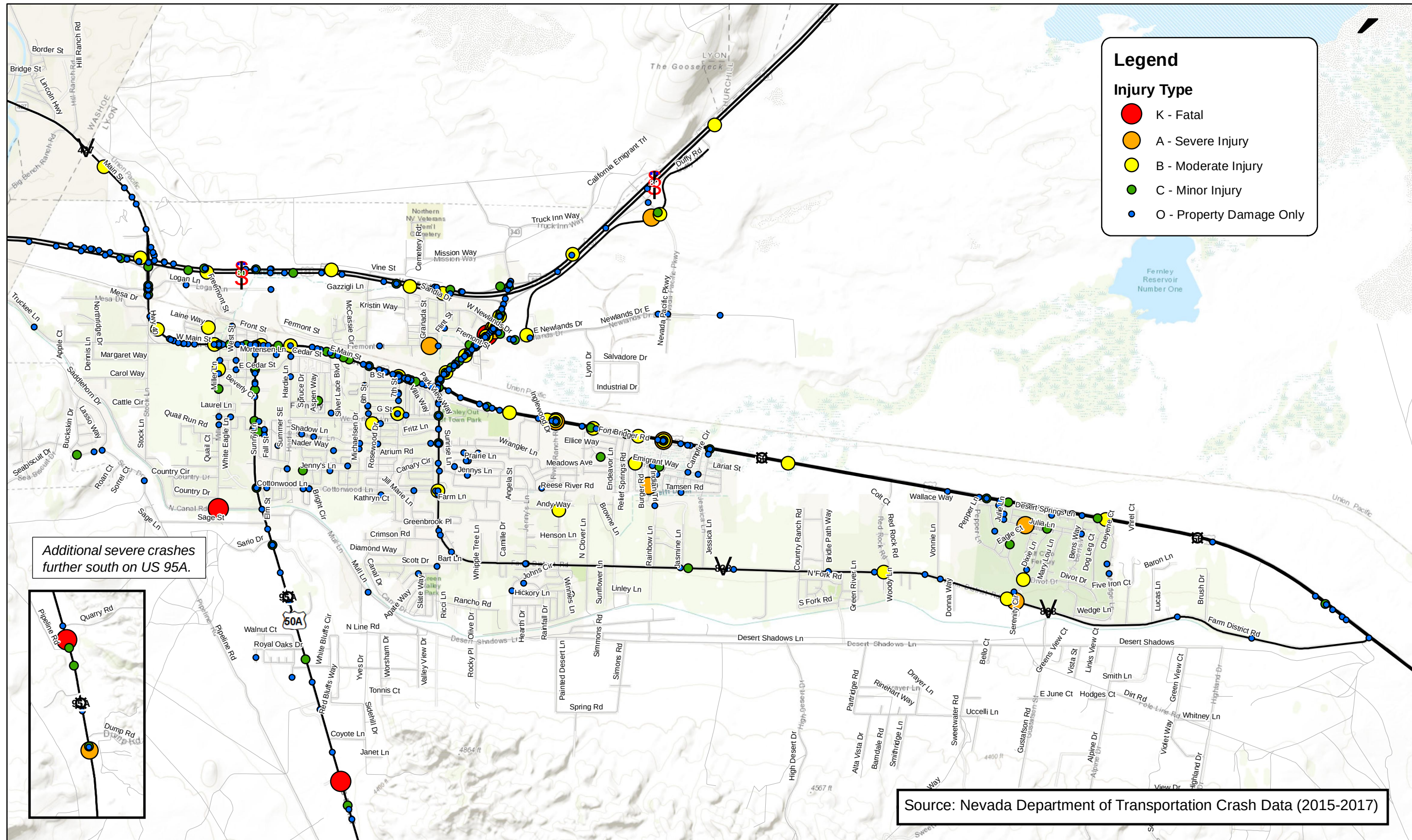


Figure 2 – City of Fernley Crashes (2015-2017)

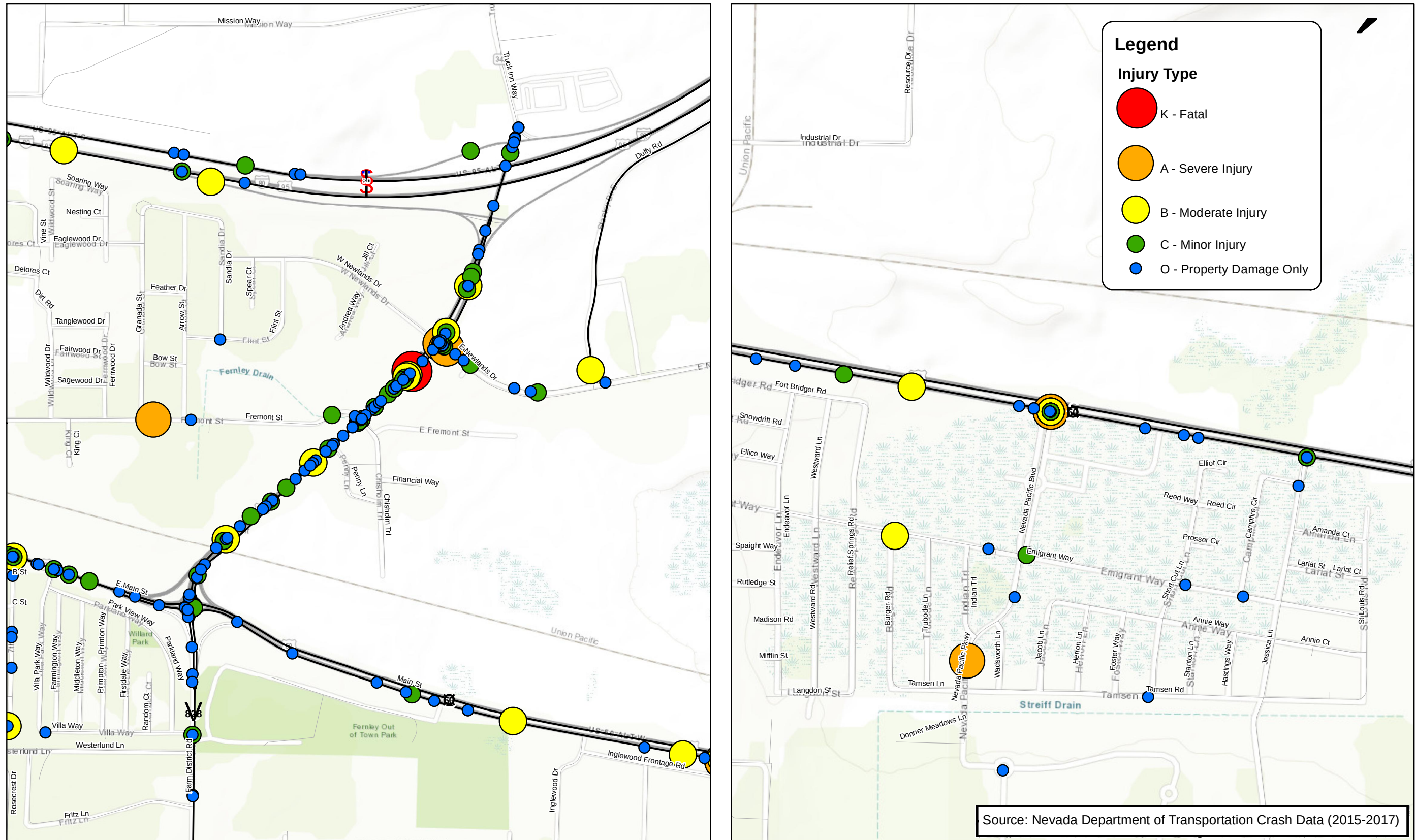


Figure 3 – Areas with High Crash Concentrations (2015-2017)

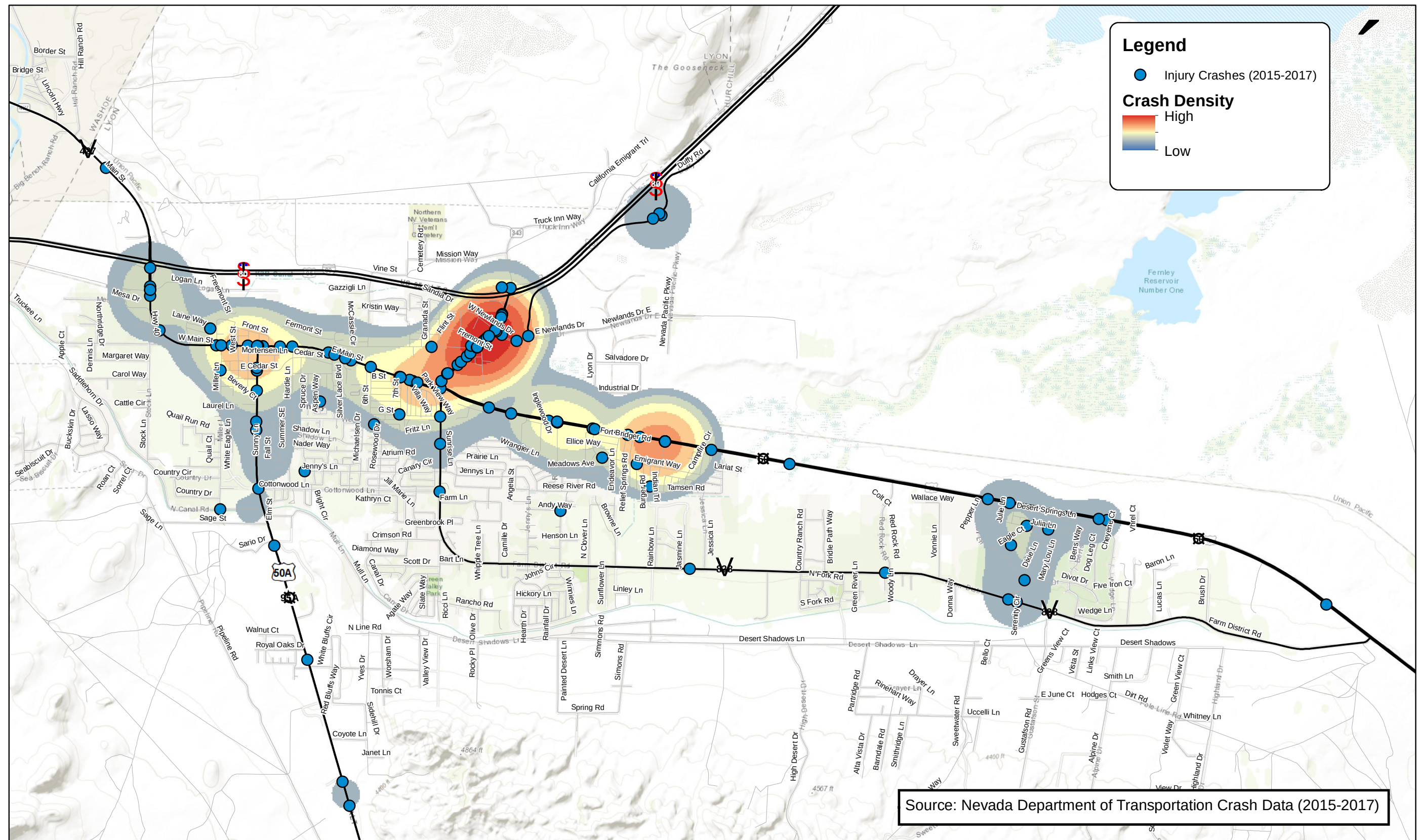


Figure 4 – City of Fernley Injury Crashes (2015-2017)

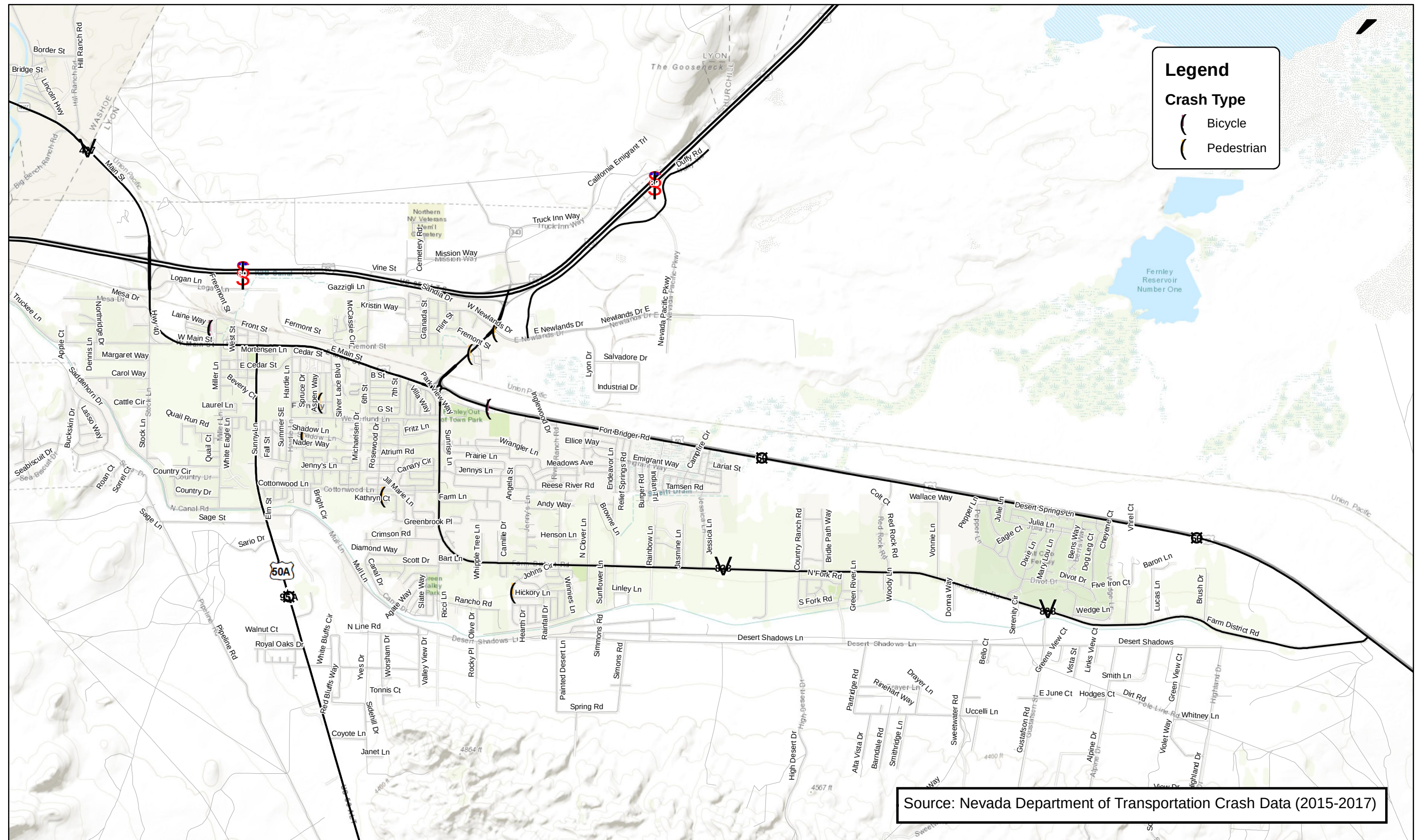


Figure 5 – City of Fernley Bicycle and Pedestrian Crashes (2015-2017)

2.4 Functional Class Review

The City of Fernley established a roadway functional classification system for all current and future roadways as part of the 2018 Comprehensive Master Plan. A street classification system is used to define the hierarchy of roadway types, so they can be identified and grouped. This system helps promote smooth transitions between highways and local roads and allow access in a safe and efficient manner throughout the transportation system.

Current classifications included in the City of Fernley Comprehensive Master Plan were reviewed against federal and state guidelines. The current classifications included in the Comprehensive Master Plan are Highways, Principal Arterials, Minor Arterials, Urban or Rural Minor Collectors, and Local Roads.

The Federal Highway Administration's (FHWA) *Highway Functional Classification Concepts, Criteria and Procedures (2013)* provides guidance for assigning functional classification. FHWA states that functional classification categories and sub-categories should be designated in both urban and rural areas. The following Federal functional classifications (and brief definition/characteristics) are used to categorize roadways:

- Interstates – designed and constructed with mobility and long-distance travel in mind
- Other Freeways and Expressways – similar to interstates, typically have directional lanes of travel separated by a physical barrier and their access points are limited, designed, and constructed to maximize their mobility with limited access
- Other Principal Arterials – roadways that serve major centers and provide a high degree of mobility, but land uses may also be served directly
- Minor Arterials – roadways that connect the arterial system or link cities and larger towns (in a rural setting)
- Major and Minor Collectors – gather traffic from local roads and funnel them to the arterial network to provide accessibility
- Local Roads – designed to discourage through traffic and are not intended for use in long-distance travel, they should be accessible for public use throughout the year

NDOT classifies their roadways using this FHWA guidance. It is recommended that the City of Fernley update their roadway functional classifications to the classifications shown in **Figure 6** that reflect the classification definitions and categories as found in the FHWA procedures and used by both NDOT and FHWA. This should also be updated in the 2018 Comprehensive Master Plan (CMP).

It should be noted that with the implementation of some of the recommended projects within this TMP, or others that may alter the character of a roadway, it may be necessary for the City to modify the classification of a roadway based on the FHWA classification guidance. For example, the connection of an existing dead-end street (local road) may result in the character of the roadway changing to gather more traffic from a local road (major or minor collector).

It is recommended that roadway classification changes be coordinated with NDOT so that information and maps are consistent between agencies.

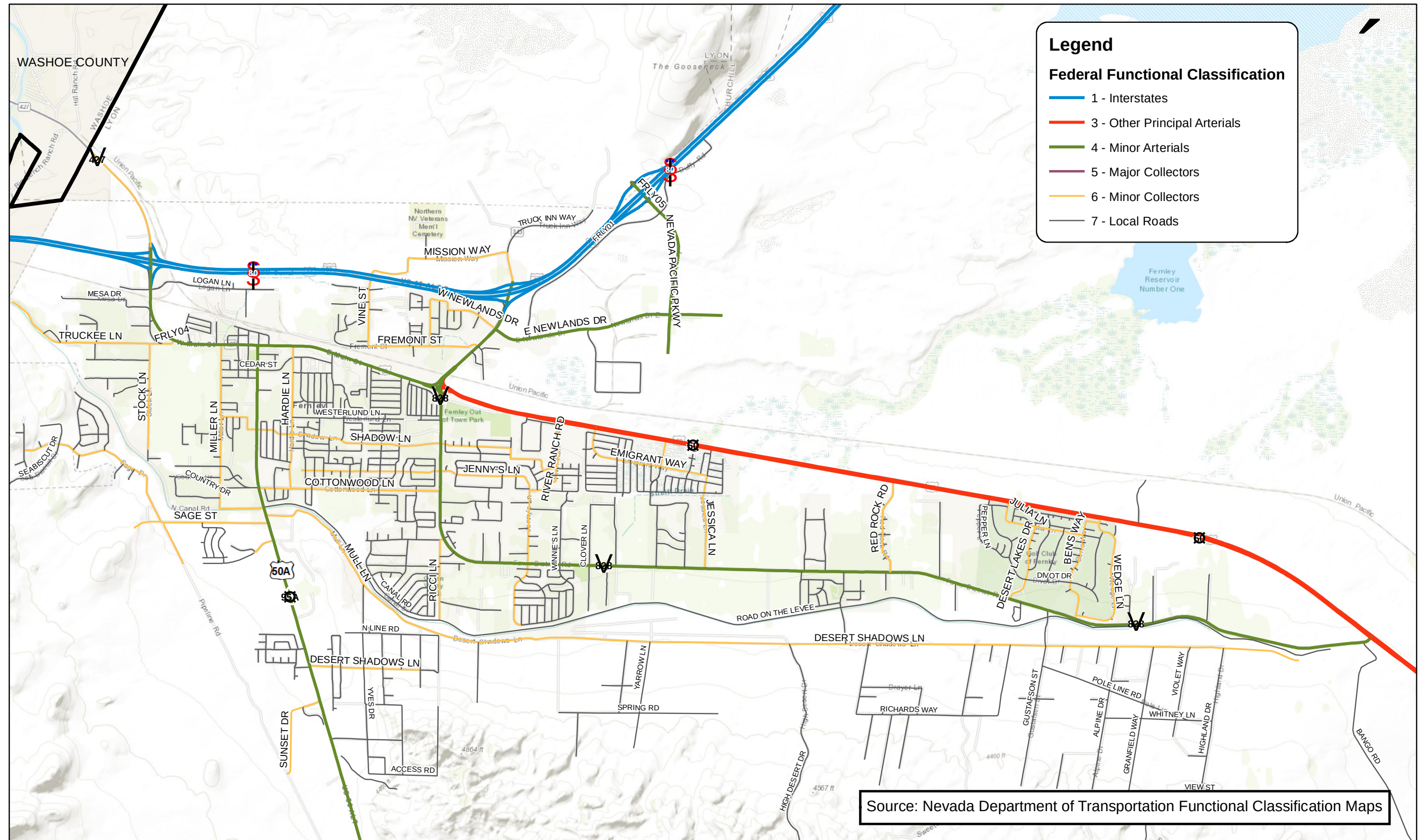


Figure 6 – City of Fernley Roadway Functional Classification

2.5 Traffic Count Data

AADT volume data was obtained from the NDOT 2018 Annual Traffic Report for roadways throughout the city. AADT data availability is limited to major roadways throughout the city as shown in **Figure 7**.

Existing AM and PM peak-hour turning movement traffic count data was field counted on Tuesday, July 16, 2019, for the following intersections in Fernley:

- Main Street and US 50A/US 95A
- Newlands Drive and US 95A
- Chisolm Trail/Fremont Street and US 95A
- Main Street Roundabout
- Cottonwood Lane/US 50A/US 95A (data gathered Tuesday, November 5, 2019)
- Cottonwood Lane/Farm District Road (data gathered Tuesday, November 5, 2019)

These locations include three signalized intersections, two unsignalized intersections, and a roundabout in the City which are understood to experience the highest traffic volumes and highest average vehicle delay. These intersections also connect the major roadways throughout the transportation network.

A summary of the count data at these intersections is provided in **Appendix B**. The data collected was utilized in the existing conditions level of service (LOS)/operations analysis performed on six major intersections in Fernley. Results of the analysis are provided in the subsequent section.

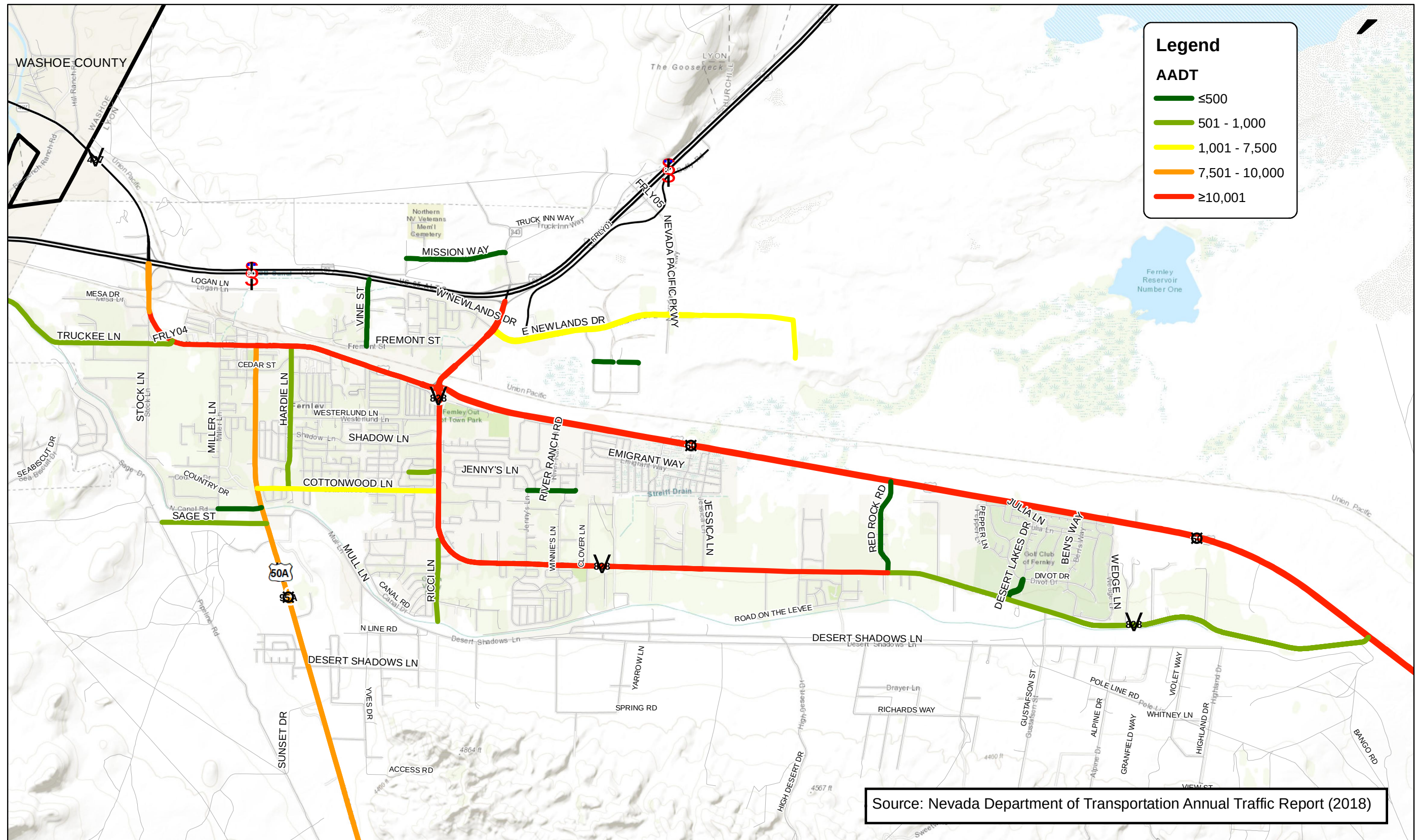


Figure 7 – City of Fernley Annual Average Daily Traffic (AADT)

2.5.1 Existing Conditions Level of Service Analysis

A traffic operations LOS analysis was performed for the six intersections listed in **Section 2.5** within the City of Fernley. The LOS analysis reports average total delay for signalized and unsignalized intersections consistent with the Transportation Research Board's "Highway Capacity Manual" (HCM) 6th Edition.

LOS for a signalized or four-way stop-controlled intersection is defined for the intersection as a whole, as opposed to being defined for each approach. Synchro 10 Traffic Simulation software was used to analyze the intersections. Synchro is an interactive computer program that enables planners and engineers to: forecast the traffic impacts of new developments; conduct area-wide traffic forecasting studies; and test different mitigation measures and compare different traffic scenarios. **Table 2** shows the vehicle delay (seconds/vehicle) for each LOS.

Table 2 – Level of Service Definitions

Level of Service	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Source: Highway Capacity Manual, 6th Edition.

To analyze roundabout traffic operations, Sidra 8 software was utilized to calculate average vehicle delay and LOS.

It should be noted that the 2018 Fernley Comprehensive Master Plan established LOS D as the minimum acceptable LOS for intersections within the city¹.

Results indicate the intersections listed per **Section 2.5** operate at acceptable LOS in both the AM and PM peak hours, except for the Main Street Roundabout in the PM peak-hour, which experiences LOS E. The existing conditions analysis results are found in **Table 3**. Detailed Synchro analysis reports can be found in **Appendix C**.

¹ City of Fernley Comprehensive Master Plan, August 2018, Chapter 4, Section 4.3, Page 88

Table 3 – Level of Service Analysis Results

Intersection	Level of Service (LOS)/Total Delay (seconds)	
	AM Peak Hour	PM Peak Hour
Main Street/US 50A/US 95A	B / 11.3	B / 15.7
Main Street Roundabout*	A / 5.0	E / 37.2
Chisolm Trail/Fremont Street/US 95A	C / 25.2	C / 33.8
Newlands Drive/US 95A	C / 22.4	C / 30.0
Cottonwood Lane/US 50A/US 95A	C / 17.9	C / 18.8
Cottonwood Lane/Farm District Road	C / 18.0	D / 28.1

*Roundabout intersection analyzed with Sidra 8 Intersection software – roundabouts are analyzed based on the delay criteria for unsignalized intersections.

2.5.2 Traffic Signal Warrants

A traffic control signal warrant analysis was completed for the intersections of Cottonwood Lane/US 50A/US 95A and Cottonwood Lane/Farm District Road based on methodologies noted in Chapter 4 of the Manual on Uniform Traffic Control Devices (MUTCD). The MUTCD provides nine traffic control signal warrants when considering installation of a traffic control signal.

Traffic count data collected for the existing conditions transportation analysis for the Cottonwood Lane intersections was utilized for the traffic control signal warrant analyses. With the data available for these analyses (six hours of traffic data collected at each intersection), the four-hour and peak-hour traffic signal warrants were evaluated for the Cottonwood Lane intersections as shown in **Table 4**. Detailed warrant calculations are included in **Appendix D**.

Table 4 – Summary of Traffic Control Signal Warrant Results

Warrant	Warrant Met?	
	Cottonwood Lane/ US 50A/US 95A	Cottonwood Lane/ Farm District Road
Four-hour Vehicular Volume	Yes	No
Peak-Hour	Yes	No

Both of the evaluated signal warrants are satisfied for the Cottonwood Lane/US 50A/US 95A intersection. It is recommended that this intersection have a traffic control signal installed per NDOT guidelines and procedures. The Cottonwood Lane/Farm District Road intersection does not currently meet signal warrants but is still included in the 5-year planning horizon recommended improvements table due to expected growth in traffic volumes and anticipated pedestrian use.

2.6 Origin-Destination Data and Analysis Summary

To help understand existing travel patterns within the city, a ‘big data’ analysis was performed using origin-destination data obtained from StreetLight Data’s On-Demand Platform. Based on selected customized geographic zones and time period, StreetLight Data anonymized and aggregated location-based data and navigation Global Positioning System (GPS) data from

mobile device applications and connected vehicles into origin-destination (O-D) pairs with several travel attributes including trip purpose, day of trip, time of trip, trip origin, and trip destination.

The results show that the common route used for trip travel is I-80. Approximately 40% of the trips passing through the City of Fernley are commercial truck trips. During the AM and PM peak hour, I-80 is a popular route for trip travel. In contrast, Main Street is a less-traveled route into and out of the City for work trips. From this information, it can be concluded that a majority of commercial vehicle trips exit the city using I-80.

The data helps inform that a majority of trips, both passenger vehicles and commercial trucks, utilize I-80, showing that I-80 is an important corridor for trip travel into and out of the city. It would be important that I-80 be reviewed for impacts of closures on this route since it would heavily impact the surrounding network. There may be a benefit in separating passenger trips and commercial trips with a by-pass route to help alleviate congestion, as recommended in **Chapter 6**.

A complete procedural breakdown of StreetLight Data analysis and results is provided in **Appendix E**.

2.7 Pavement Data

Pavement condition data was provided by the City. The data indicates a Pavement Condition Index (PCI) rating for roadways throughout the city. PCI is a numerical rating of the pavement condition based on types and severity of pavement distresses observed during evaluation. The PCI value of a pavement ranges between 0 and 100. A pavement condition is considered very good if between 70 and 100, good if between 50 and 69, poor if between 25 and 49, and very poor if between 0 and 24. Fernley roadway PCI ratings from 2017 are shown in **Figure 8**. As shown in the figure, there are some areas of need for improved pavement condition including the older north/west sections of the city and portions of the industrial areas.

Many of the residential areas in the city have very good pavement condition.

With planned industrial growth coming to the city, pavement condition of roadways may become more critical as additional heavy vehicles on the roadways intensify pavement deterioration. Data will need to continue to be collected and evaluated regularly.

2.8 Active Transportation Facilities

There are various existing active transportation facilities throughout the city (pedestrian/bicycle/multi-use facilities). There are existing bicycle lanes on Cottonwood Lane, Hardie Lane, and US 50A/US 95A, and an existing multi-use path along a portion of Farm District Road. These facilities are depicted in **Figure 9**. There have been many active transportation facilities proposed in previous studies as recorded in **Section 2.1** of this TMP. Some of the proposed active transportation facilities include:

- Improve SR 427 to provide a bicycle facility to connect Fernley to Wadsworth
- Provide a bicycle facility along Farm District Road
- Widen the railroad underpass on SR 427 entering west Fernley to remove a pinch point for pedestrians and bicycles
- Widen shoulders between Silver Springs and Fernley
- Provide trail system, specifically along the Truckee Canal

- Install a bicycle lane along Main Street (US 50A/US 95A) in Fernley
- Add a bicycle lane on US 50A/US 95A from Main Street to Royal Oaks Drive
- Install bicycle wayfinding signage along US 50 throughout the entire county
- Install a paved shoulder along US 50 throughout the entire county

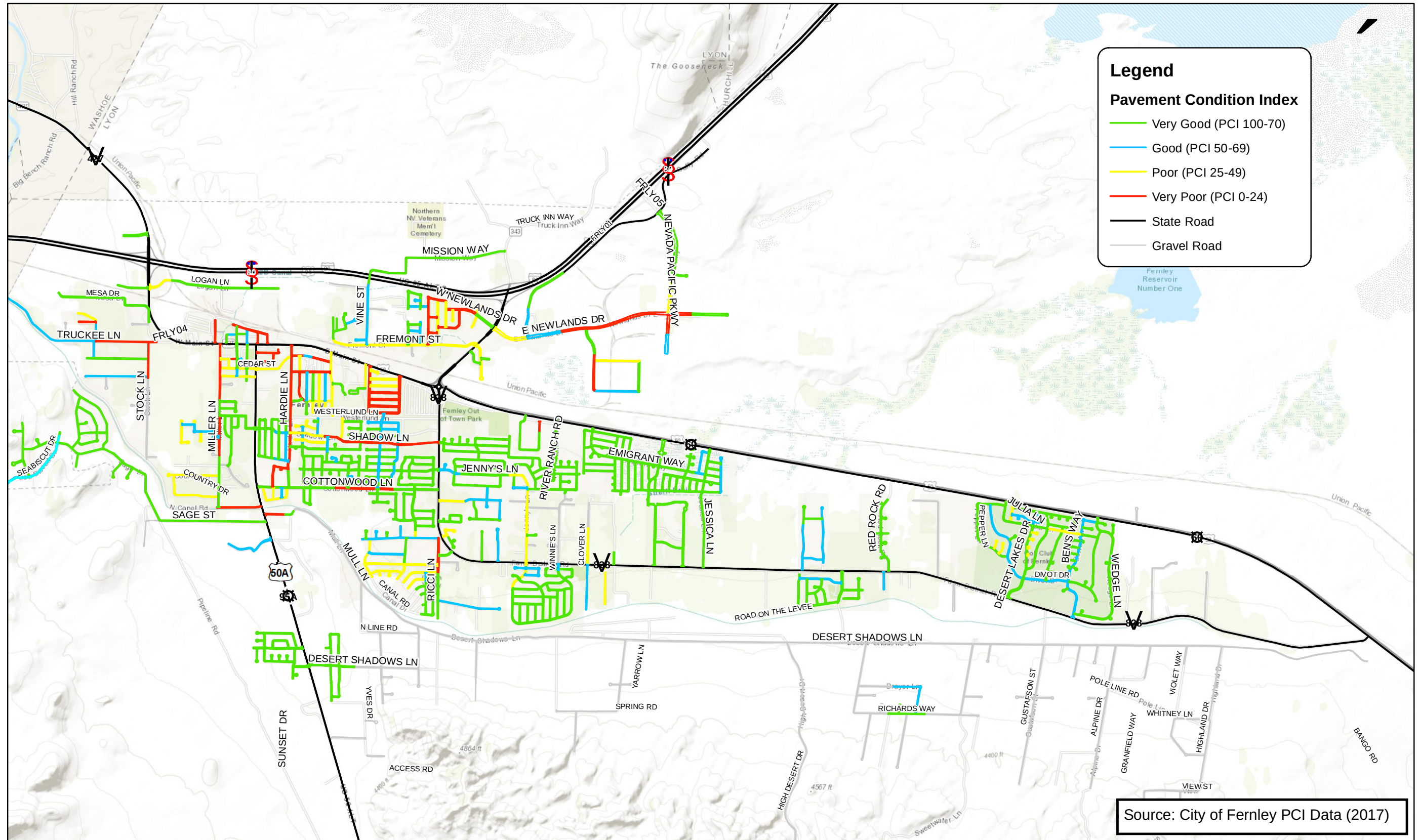


Figure 8 – City of Fernley Pavement Condition Index Data (2017)

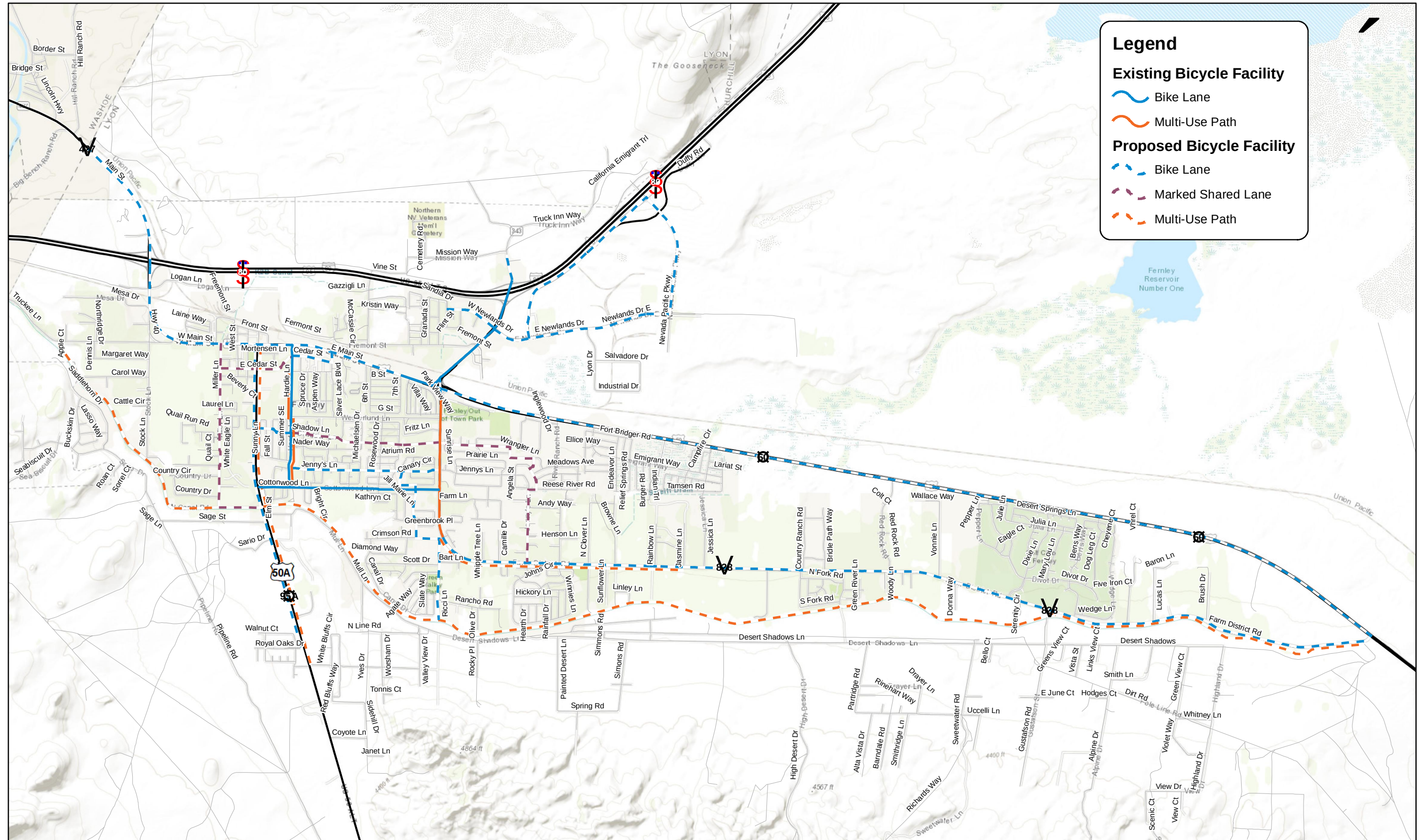


Figure 9 – City of Fernley Existing and Proposed Active Transportation Facilities

2.9 Data Gaps

City of Fernley and surrounding regional jurisdictions should continue to collect and store data that supports strategic decision-making.

Best practices for collecting data, including method, frequency, and type, along with integration and implementation strategies are found in the following report published by the FHWA, entitled *Asset Management Data Collection for Supporting Decision Processes*² **Error! Hyperlink reference not valid.**

The following data should be considered for collection/development to aid in making strategic decisions in the future regarding the transportation network and infrastructure in the city:

- Active transportation facilities (pedestrian and bicycle)
- Transit facilities and ridership (when a transit system is initiated)
- Intersection operations
- Sidewalk inventory
- Annual traffic counts
- Socio-economic data including population and employment
- Communications network/Intelligent Transportation Systems (ITS) related infrastructure
- Pedestrian facility use data (when and where traffic counts are required per City of Fernley design standards for proposed developments)

2.10 Travel Demand Model

Many small urban areas have invested in four-step TDMs. A four-step model helps to forecast future traffic conditions through the following steps³:

Step 1: Trip Generation – How many trips are generated?

Trip generation determines the frequency of origins or destinations of trips in each traffic analysis zone by trip purpose, as a function of land use, household demographics, and other socioeconomic factors. A set of equations is used to estimate the number of trips produced by and attracted to each zone based on its residential and employment characteristics. For example; the more employment a zone has, the more work trips it attracts. The more retail employees in a zone, the more shopping trips are assumed to be attracted there.

Step 2: Trip Distribution – Where do trips go?

Trip distribution matches origins with destinations, often using a gravity model – a calculation that considers the relative activity at the origin and destination as well as the travel cost to go between them.

Step 3: Mode Choice – What travel mode is used for each trip?

Mode choice estimates the choices that individuals or groups make in selecting their transportation modes. An important objective is to predict the share of trips attracted to public transportation. Other factors considered for mode choice include: travel time, travel cost, and access to mass transit options.

² https://www.fhwa.dot.gov/asset/dataintegration/if08018/assetmgmt_web.pdf

³ Adapted from: <https://bfcoq.us/transportation/gismapping-modeling/regional-travel-demand-model/four-step-travel-demand-model/>

Step 4: Trip Assignment – *What is the route of each trip?*

The final step is to determine the specific routes travelers choose to reach their destinations. Network connectors are used to represent the local streets/access routes. For example, a congested corridor might change the route of a user to take a different route with a longer distance but same travel time. This assists with the analysis of new or future transportation projects or improvements.

Fernley currently does not have a four-step TDM for the city. Development of a model requires significant investment and coordination with regional partners.

It is recommended that Fernley coordinate an interagency agreement for the City's planning area to be added to the Regional Transportation Commission of Washoe County's (RTC Washoe) TDM. Because of the connectedness of Fernley to the Reno-Sparks metropolitan area, I-80, and the Tahoe Reno Industrial Center (TRIC), a model including all sources of travel demand in the region is recommended.

In absence of a four-step TDM, a simple transportation network model was created for Fernley. The model includes major routes throughout the city, traffic volumes and potential operations. This model will allow the City to track development impacts to the transportation system moving forward as well as aid in projecting future transportation issues and needs.

2.11 Public Comment

In addition to reviewing the technical transportation data in the city, the public was requested to provide qualitative and anecdotal data. This process helped define priorities for the residents of the City as well as opportunity for consensus building.

A public meeting was held at City Hall on October 3, 2019. Public comment was also received via an online survey. Lastly, a pop-up meeting was held at the City of Fernley Spooktacular event on October 31, 2019 to inform residents of the TMP. The goal of the public meeting and the online survey was to gather community input to utilize in the development of recommendations for the Fernley TMP.

The input acquired from the community via the public outreach meetings and online survey is provided in a summary memorandum in **Appendix F**. Over 200 comments were received through the public outreach process. Notable feedback from those attending the public meeting and/or participating in the online survey includes the following:



- The top three most important elements of a transportation system in the city are:
 - Roadways and intersections
 - Public transit (bus service)
 - Parking availability
- The top three items to encourage walking around the City are:
 - New landscaping
 - New sidewalks
 - Improved intersection and roadway lighting
- The top three items to encourage bicycling around the City are:
 - New bicycle facilities
 - Improved intersection and roadway lighting
 - Improving existing bicycle facilities



CHAPTER 3 – COMPLETE STREETS EVALUATION

This chapter assesses the city's existing motorized and non-motorized facilities to identify mobility challenges, safety enhancements, and opportunities for multimodality. An evaluation of roadway facilities, intersection treatments, bicycle facilities, pedestrian accommodations, and network connectivity are included in this chapter. The results of these analyses were used to draft recommendations for multimodal transportation network improvements for the city.

3.1 Roadway Corridor Evaluation

This section describes the roadway corridor assessment, key issues, recommendations and strategies for improvement of the roadways in the city.

3.1.1 Assessment

Higher-volume roadways were identified from AADT data and mapped for the City (see **Figure 7**). Two capacity analyses were performed for segments where AADT was available. The analyses consisted of comparing AADT volumes to generalized annual average daily volumes representing varying LOS for different roadway types.

The generalized AADT thresholds and corresponding LOS that are used in this analysis are published in the City of Fernley's *Comprehensive Master Plan* (2018) and a secondary methodology from the Florida Department of Transportation's Quality/Level of Service Handbook Tables was also used for comparison. These thresholds and results are provided in **Appendix G**. The methodology included in the City of Fernley's *Comprehensive Master Plan* was adopted from the RTC Washoe's methodology and provides a single threshold for AADT based upon a roadway facility's functional classification, number of lanes, access control, and speed limit as either above or below LOS D. The Florida Department of Transportation's methodology includes evaluating the AADT, speed limit, roadway classification, and median types to estimate a LOS designation.

3.1.2 Key Issues

Per the City of Fernley's 2018 *Comprehensive Master Plan*, LOS D is the minimum acceptable LOS for City roadways. The analyses showed similar results with only one roadway segment



currently over capacity: US 95A between the Main Street Roundabout and I-80. The roadway segment showed LOS E when using the City of Fernley Comprehensive Master Plan methodology and LOS F when using the Florida Department of Transportation methodology.

The results of the capacity analyses per City of Fernley Comprehensive Master Plan methodology are shown in **Figure 10**.

Other roadway segments that are either approaching capacity or operate at LOS D include:

- US 50A/US 95A between Main Street and south Fernley City limits
- Main Street between US 50A/US 95A and the Main Street Roundabout
- Main Street between I-80 west exit (Exit 46) and US 50A/US 95A
- Farm District Road between the Main Street Roundabout and Red Rock Road
- Cottonwood Lane between US 50A/US 95A and Farm District Road



3.1.3 Recommendations and Strategies

Additional roadway connections and network connectivity, discussed later within this document, could aid in alleviating capacity concerns. For example, a connection of US 50 and I-80 via Nevada Pacific Parkway could potentially alleviate some congestion along US 95A between the Main Street Roundabout and I-80; a segment currently over capacity with a LOS of E. Other network connections and improvements as presented later in the TMP, may improve conditions for roadway segments approaching capacity. However, it should be noted that with increased development along US 95A near the Chisolm Trail/Fremont Street area additional capacity and

safety concerns may arise, thus evaluations and improvements are recommended along this segment.

Specific capacity recommendations and improvements with associated planning-level cost estimates are addressed in **Chapter 6** of the TMP.

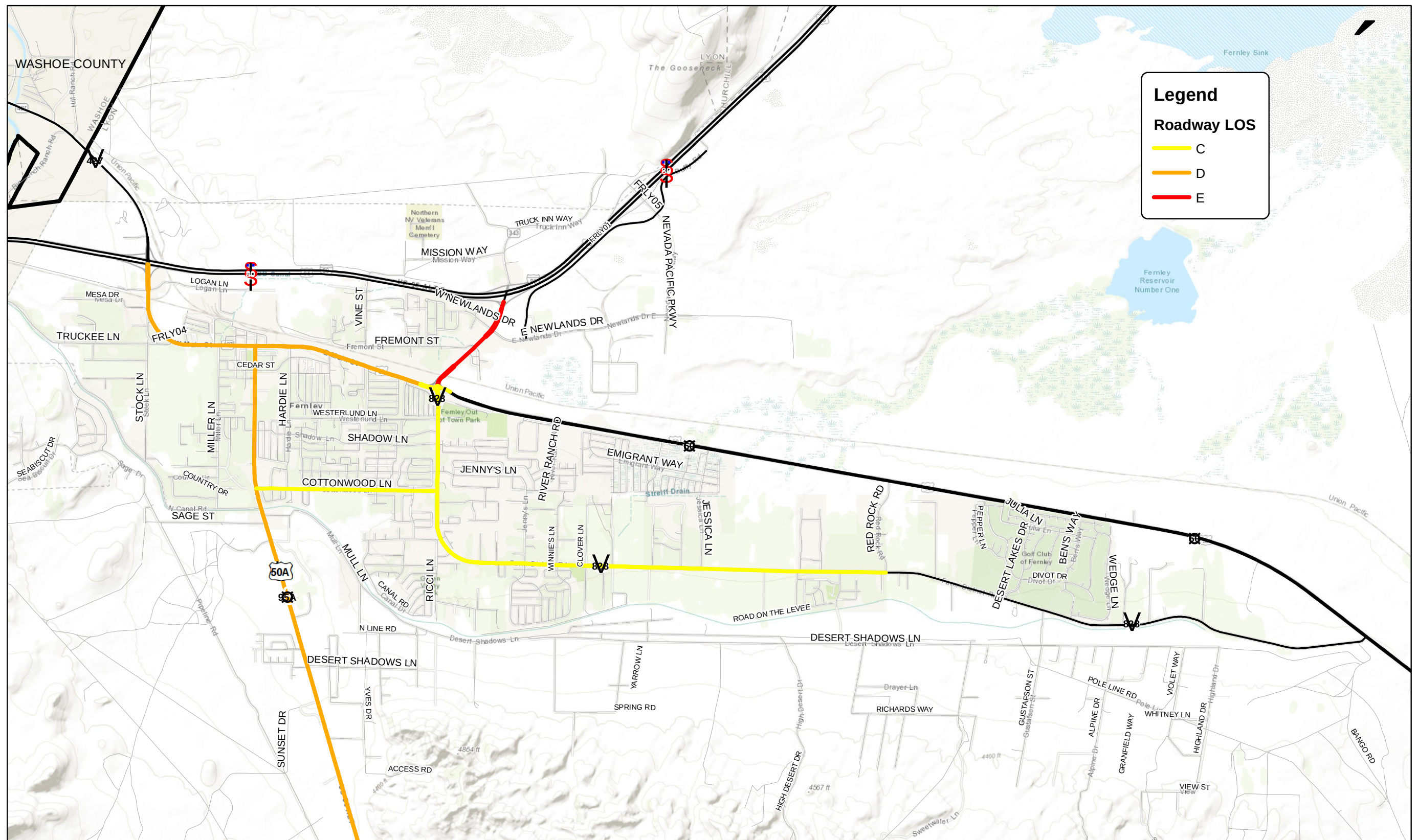


Figure 10 – Capacity Analysis/LOS Results

3.2 Intersection Evaluation

This section describes the intersection assessment, key issues, recommendations, and strategies for improvement of intersections within the city.

3.2.1 Assessment

The evaluation of existing conditions of major intersections throughout the city showed acceptable existing condition traffic operations, with exception of the Main Street Roundabout, which experienced LOS E in the PM peak hour.

There are currently four signalized intersections throughout the City of Fernley:

- US50A/US 95A/ Main Street
- US 95A/Fremont Street/Chisolm Trail
- US 95A/Newlands Drive
- Stanley Drive (SR 343)/Newlands Drive

Most other intersections are either two-way or four-way stop-controlled, with exception of the following four intersections which are roundabouts of varying size:

- Main Street Roundabout
- Nevada Pacific Parkway/Banner Health Center
- Nevada Pacific Parkway/Rainbow Lane
- Jasmine Lane/Silverland Middle School

As the City's population and traffic volumes continue to grow, there may be a need to signalize or improve intersections to accommodate additional traffic (increase capacity), maintain safety, and operate efficiently. It is recommended that the City utilize the MUTCD guidelines to determine when a traffic control signal is warranted. The guidelines require the study of traffic conditions, crash history, pedestrian characteristics, and physical characteristics of a location to determine whether installation of a traffic control signal is warranted at a location.

3.2.2 Key Issues

The existing signalized intersections are expected to see increased traffic volumes and may require capacity enhancements. Potential capacity and safety enhancements may include:

- Traffic signal retiming
- Traffic signal re-phasing
- Installing yellow-flashing left-turn arrows
- Evaluation of lane reconfiguration
 - Installation of turn lane(s)
- Alternative intersection designs and/or control
 - Installing a roundabout

Intersections that are currently stop-controlled may, in the future, require alternative intersection control treatments. These treatments may include:

- Removal of unwarranted stop signs
- Signalization

- Yield control
- Alternative intersection designs
 - Installing a roundabout or traffic circle

3.2.3 Recommendations and Strategies

Based on current volumes as provided by NDOT, expected areas of growth, traffic patterns, and physical characteristics of the existing intersections, the following intersections should be monitored for traffic growth as they may warrant traffic signals or other intersection control in the future:



- I-80 Ramps/Nevada Pacific Parkway
- Nevada Pacific Parkway/Stanley Drive (SR 343)
- Multiple locations along Nevada Pacific Parkway, pending future development
- Nevada Pacific Parkway/E. Newlands Drive
- US 50/Nevada Pacific Parkway
- US 50/Desert Rose
- US 50/Farm District Road (east connection, not at the Main Street Roundabout)
- US 50/River Ranch Road (currently planned for signalization by NDOT)
- Farm District Road/Wilson Way
- Farm District Road/Winnies Lane
- Farm District Road/Desert Lakes Drive
- US 50A/US 95A/Shadow Lane
- US 50A/US 95A/Sage Drive
- Main Street/Pilot Road



At the public meeting, comments were made regarding needed improvements to the US 50A/US 95A/Cottonwood Lane intersection and the Main Street Roundabout. These two intersections were evaluated, and it was determined that improvements could be made to current operations.

In addition to considering geometric improvements to the existing Main Street Roundabout, as significant delays are experienced in the PM peak hours, traffic operations may be improved by developing additional network connections such as connecting Nevada Pacific Parkway and US 50, which would potentially divert a portion of traffic from the US 95A segment.

Currently, the Main Street Roundabout is critical in the transportation network due to its location between residential areas and I-80 and the commuter traffic, freight traffic, and commercial traffic that accesses this intersection. As more connections to I-80, US 50A, and US 95A are made, reliance on the roundabout may diminish but should be evaluated with the expectation of additional development along US 95A.

3.3 Bicycle Evaluation

This section describes the bicycle assessment, key issues, recommendations, and strategies for improvement of bicycle facilities in the City.

3.3.1 Assessment

The Mineta Transportation Institute's *Low-Stress Bicycling and Network Connectivity Analysis (2012)* establishes a methodology to evaluate cyclist stress based on roadway facilities. Roadways are ranked from level of traffic stress (LTS) 1 (lowest stress) to LTS 4 (highest stress). In addition, the methodology classifies cyclists into four types. **Table 5** defines the LTS facility types and suitable rider types. The following criteria are used to establish the LTS ranking:

- Roadway classifications
- Roadway speeds (posted)
- Bicycle facility type
- Bike lane widths
- Parking lane width

Table 5 – Level of Traffic Stress

Level of Traffic Stress	Facility Type	Suitable Rider Type
LTS 1	Low traffic stress demands little attention. Suitable for almost all cyclists.	"Interested but Concerned" - Adults and Children
LTS 2	Some traffic stress demands more attention. Suitable for most adult cyclists.	"Interested but Concerned" - Adults Only
LTS 3	Increased traffic stress. Not comfortable to all adult cyclists.	"Enthusied and Confident" - Adults Only
LTS 4	Highest traffic stress. Only used by experienced cyclists.	"Strong and Fearless" - Adults Only

Consistent with the methodology, each City of Fernley roadway is assigned a score between LTS 1 and LTS 4 (**Appendix H**). **Appendix H** also summarizes the LTS inputs for each segment and associated scores.

3.3.2 Key Issues

The results of the LTS evaluation are shown in **Figure 11** and illustrate barriers to bicycle connectivity throughout the city. Note that I-80 is not included in the analysis since state statute prohibits bicyclists on I-80 through the City of Fernley (from Exit 43 - Wadsworth to Exit 48 - Fernley). Main Street (US 50A/US 95A), US 50A/US 95A, and Farm District Road are high-stress barriers to bicyclists in Fernley.

US 50A/US 95A currently presents a barrier between Fernley High School and neighborhoods directly to the west, as well as the city's main residential areas to the north. The project to construct an off-street multi-use path along US 50A/US 95A from Main Street to south of the High School will provide a low-stress multimodal option. The recently completed Hardie Lane multiuse path also provides an alternative north-south bicycle connection.

Farm District Road provides direct east-west access through the residential area and access to Main Street. However, its LTS 4 condition deters cyclists from using this main thoroughfare. Farm District Road presents a barrier between Silverland Middle School and neighborhoods to the south although the existing multi-use path from Main Street to Crimson Road provides a low-stress, off-street alternative and the planned extension from Crimson Road to Jasmine Road (and Silverland Middle School) will enhance the multimodal facility options. It is recommended that the multi-use path be further extended the length of Farm District Road to US 50, which would provide an LTS 1 off-street facility.

Newlands Drive and segments of US 50A both provide LTS 4 for bicycle riders. Although portions of the roadways have curb, gutter, and sidewalk installed, City ordinance prohibits use of bicycles on sidewalks.

I-80 is a barrier to cyclists accessing north Fernley. Main Street (LTS 3) provides a crossing, though cyclists must navigate the narrow railroad underpass (the “mouse hole”) and may be wary of navigating the interchange.

East Newlands Drive (LTS 4) reduces bicycle mobility between the commercial area at the intersection of US 95A and the industrial area at Lyon Drive, as well as the proposed Nevada Pacific Parkway extension to US 50A.

The LTS analysis does not account for road surface conditions. Cyclists generally prefer paved roads to unpaved roads, which can be less comfortable/navigable and can increase wear and tear on the bike. Desert Shadows Lane/Mull Lane, which has LTS 1, appears to provide a low-stress east-west connection through southeast Fernley; however, the road is not paved and is therefore not ideal for cyclists in its existing condition..



3.3.3 Recommendations and Strategies

3.3.3.1 Roadway Improvements

In concurrence with the 2016 Lyon County Bicycle Plan, separated bicycle lanes and multi-use paths should be considered for roadways with the highest level of bicycle stress in the City: US 50A/US 95A, US 50, Newlands Drive and Farm District Road. The planned/programmed multi-use paths along US 50A/US 95A and Farm District Road are recommended to be extended for additional multimodal connectivity. The existing and proposed bicycle and multi-use facilities, including those from the Lyon County Bicycle Plan were included as **Figure 9** for reference.



3.3.3.2 Intersection Improvements

Additional bicycle- and pedestrian-friendly crossings should be created across US 50A/US 95A, Main Street and Farm District Road, to access the existing and proposed multi-use paths, particularly in the vicinities of Silverland Middle School and Fernley High School. In addition, any extension of Nevada Pacific Parkway should take bicycle accessibility into account along the roadway and at the intersection with US 50.

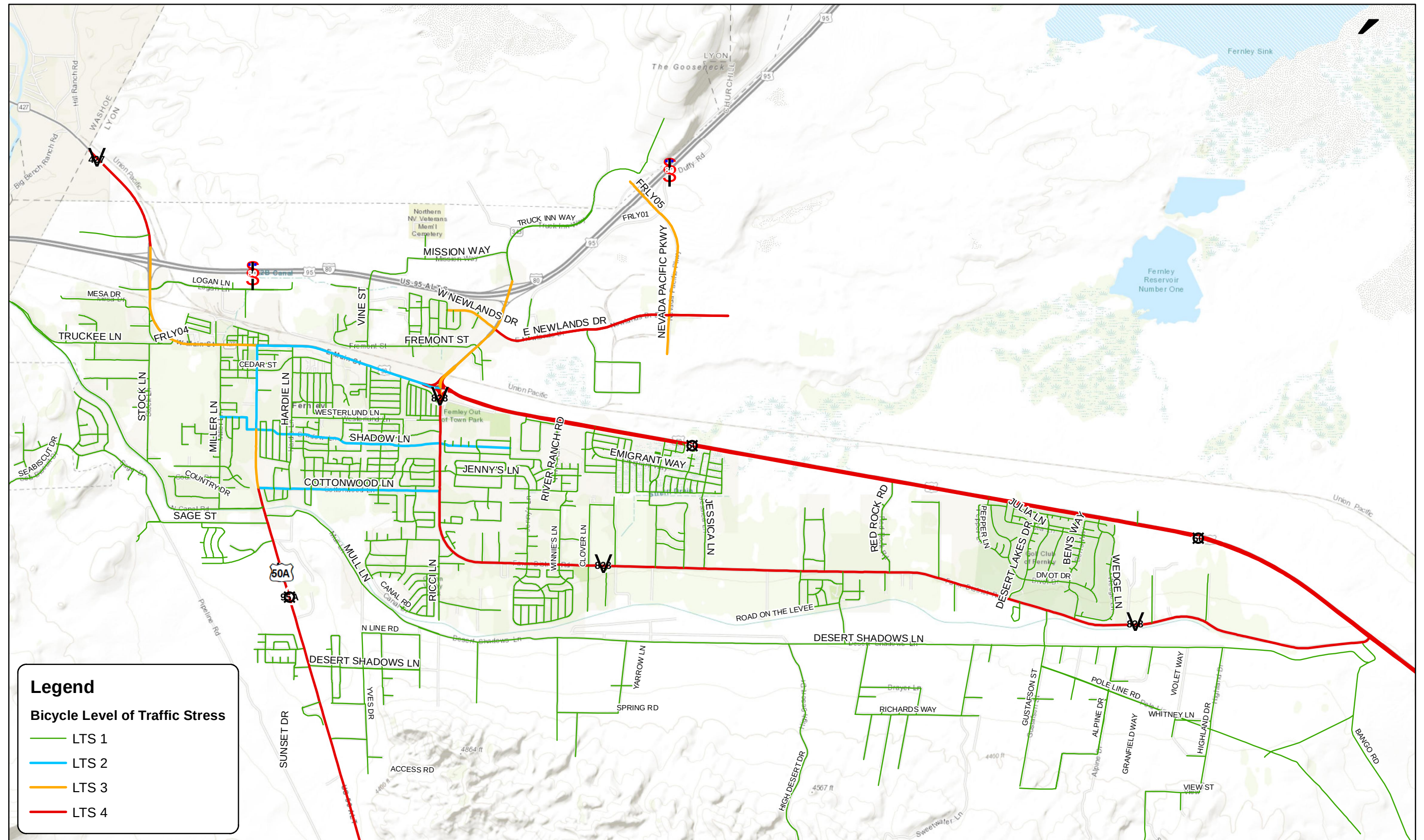


Figure 11 – Bicycle Level of Traffic Stress Analysis

3.4 Pedestrian Evaluation

This section describes the pedestrian assessment, key issues, and recommendations and strategies for improvement of pedestrian accommodation in the City.

3.4.1 Assessment

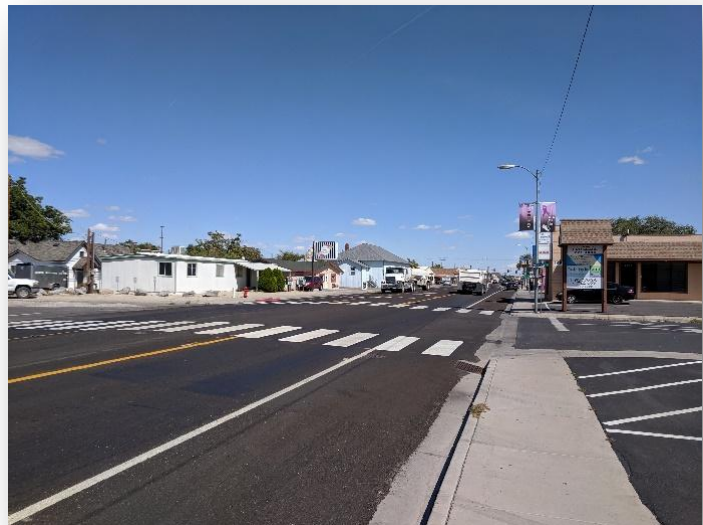
Pedestrian facilities and use data are not currently being collected for the city. As noted previously, there are various active transportation facilities throughout the city. Sidewalks and multi-use paths contribute to the available pedestrian facilities found in the city. Pedestrian facility use data could be collected for the city when traffic counts are required per City of Fernley design standards for proposed developments. Pedestrian use data helps the City to evaluate the effectiveness of improvements (e.g. if sidewalks are constructed, does it increase the number of pedestrians).

3.4.2 Key Issues

The City's current pedestrian facility inventory and pedestrian facility use data is limited.

3.4.3 Recommendations and Strategies

The downtown Fernley area including Main Street (US 50A/US 95A) may benefit from active transportation improvements which could include enhanced pedestrian, bicycle, and scooter facilities. Currently there are 11 marked crosswalks along Main Street (US 50A/US 95A) and two are located at signalized intersections. The City should explore additional improvements to the roadway such as center medians, enhanced signal crossings, or bulb-outs at intersections to accommodate improved multimodal transportation in the area.



Multi-use paths, trails, sidewalks, and bicycle lanes should be surveyed and added to the City's asset inventory. A bicycle/pedestrian plan should be established and adopted to include evaluation of facilities and associated condition, at regular inspection intervals. A sidewalk inventory will help the City locate gaps throughout the pedestrian network and identify areas for improvement.

Although the bicycle LTS analysis completed in **Section 3.3** focuses on bicycle travel only, recommendations resulting from the analysis (see **Section 3.3.3**) will also improve conditions for pedestrians throughout the city. Specifically, recommendations for intersections and crossings benefit bicyclists and pedestrians similarly as they are usually intended to reduce exposure to vulnerable transportation users.

3.5 Network Connectivity Evaluation

A network connectivity evaluation was conducted to identify dead-end streets and other barriers to transportation network connectivity in the City. Based on this analysis, recommendations to enhance interconnectivity are made, such as traffic calming techniques to discourage through-traffic and minimize excessive speeds on new roadway connections, along with possible extensions.

3.5.1 Assessment

The network connectivity analysis was conducted using geographic information system (GIS) software to identify dead-end roads in the network. With this information, all roadways were classified as follows:

- **Dead-End:** Any road that connects to only one other road.
- **Dead-End Neighborhood:** All roads within a residential development that have only one access road are also classified as “Dead-End.”
- **Connectors:** All roads that provide through connections within the city. These include both collectors and arterials, as defined by federal functional classifications, as well as residential roads that provide connections through neighborhoods.
- **Local Roads:** Roads within neighborhoods that are not dead-ends, but do not provide connectivity through the neighborhood.

In addition to dead-end roads, roadway surface type, paved and unpaved, was analyzed. When considering network connectivity, unpaved roads do not provide the same capacity and reliability as paved roads. Some roads may appear to provide connections through and out of neighborhoods on a map; however, some of these roads are unpaved and should not be considered connectors.

Figure 12 shows the connectivity of paved roads in the City considering the dead-end analysis and the road surface type analysis. Converting an unpaved road to a paved road provides an opportunity to support interconnectivity without constructing new roadway alignments.

3.5.2 Key Issues

Several barriers to network connectivity in the city were identified in this analysis. The Union Pacific Railroad (UPRR), I-80, and the Truckee Canal all run in an east-west direction in the vicinity of Fernley and are barriers to north-south connectivity.

3.5.2.1 Union Pacific Railroad

The UPRR runs east-west in the City, parallel to US 50/US 50A. The railroad must be crossed to access I-80 from downtown Fernley, as well as any future developments north of I-80. Residential areas between the railroad and I-80 are restricted to access via US 50A/US 95A to the east and West Main Street to the west. There are currently only two railroad crossings: US 95A and west Main Street. The west Main Street crossing is a narrow underpass with low clearance and minimal shoulders, presenting an obstacle for all modes of transportation.

3.5.2.2 Interstate 80

I-80 runs east-west through Fernley and is a northern barrier to mobility. Interchanges at West Main Street and US 50A/US 95A provide access to I-80 and beyond, while Vine Street provides

an underpass connection. Nevada Pacific Parkway currently terminates at the I-80 interchange. The proposed North Fernley Future Development Area (FDA) north of I-80 will require access across I-80 to the core of the city.



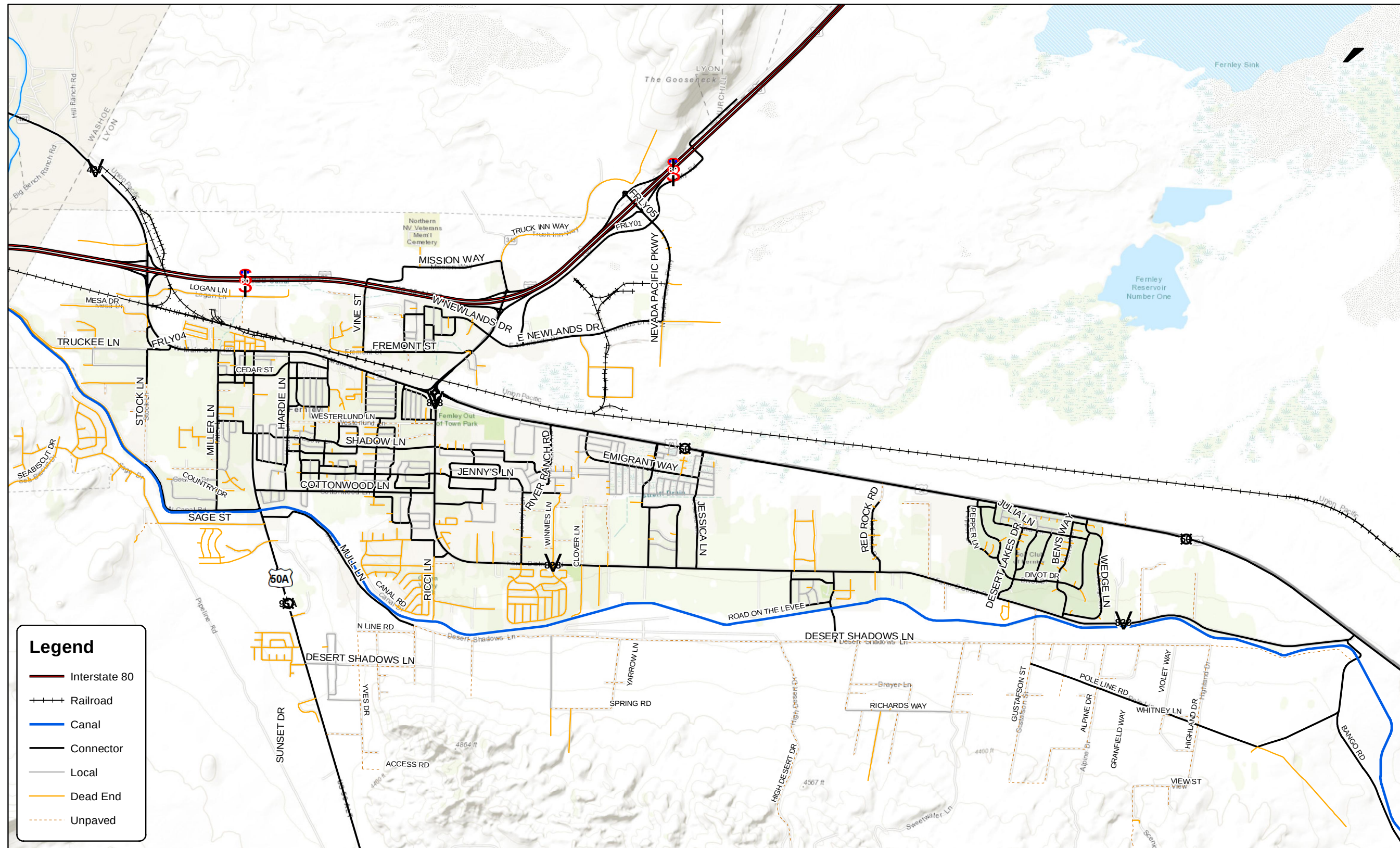


Figure 12 – Network Connectivity

3.5.2.3 Truckee Canal

The Truckee Canal runs east to west in the city, south of the commercial core. The canal divides downtown Fernley from current and proposed residential areas in the south of the city and is a barrier between Fernley High School and the denser residential areas in the core of the city. The main canal crossing is at US 50A/US 95A. There are three additional unpaved crossings at Clearwater Parkway, Gustafson Road, and Desert Shadows Lane/SR 828/Old Reno Highway.

3.5.2.4 Dead-End Residential Developments

The canal, railroad, and I- 80 establish boundaries that create dead-end residential developments, which are neighborhoods with limited access to main connector roads. The largest geographic dead-end neighborhood is the Sage Street development located southwest of the Truckee Canal. The neighborhood is bounded by the canal to the north and US 50A/US 95A to the east and accessible only via Sage Street. Additionally, the higher density neighborhoods accessed via Wilson Way and Jenny's Lane/Winnies Lane from Farm District Road are bounded by the canal to the south, creating dead-end neighborhoods.

3.5.2.5 Unpaved Roads

Unpaved roads are located primarily in southeast Fernley. The primary east-west connector south of the canal is the unpaved Desert Shadows Lane. Additionally, there are several residential unpaved roads within the denser city core that could be paved and extended to enhance internal neighborhood connections.



3.5.2.6 Mobility Challenges

Anticipated mobility challenges for the city will be how to continue to accommodate growth and expansion, expand active transportation and transit modes to serve all users, and connect existing and future facilities. Currently there are no transit facilities serving the city.

A number of Fernley residents commute to and from TRIC, some using employer-provided shuttles. As TRIC and Fernley continue to grow, more commuters are expected to use the route.

3.5.3 Recommendations

Recommendations to enhance connectivity throughout the city are shown in **Figure 13** and include road connections, surface improvements, and identified dead-end neighborhoods.

3.5.3.1 Road Connections

1. **Logan Lane:** Extend east and connect to Vine Street.
2. **Front Street:** Pave and extend west to West Main Street. Create smoother connection between Dallas Street and North West Street.
3. **Vonnie Lane:** Pave and extend north to Main Street.

4. **Winnies Lane (South of SR 828):** Pave and extend to the north to connect to Reese River Road.
5. **Westerlund Lane:** Pave and connect eastern and western segments. Connect to Farm District Road to the east and to Silver Lace Boulevard to the north.
6. **Browne Lane:** Pave and connect to Clover Lane to the west.
7. **Westward Lane:** Extend south to Browne Lane
8. **Fort Sutter Boulevard:** Extend south to Clover Lane.
9. **Bridle Path Way/Country Ranch Road:** Extend north to connect development to US 50.
10. **Round Up Road:** Extend east to connect with new development.
11. **Nevada Pacific Parkway:** Connect northern and southern sections across the railroad and US 50.
12. **Desert Shadows Road:** Pave and connect eastern and western segments via Valley View Drive.
13. **Rancho Road:** Extend east to connect to Jenny's Lane.
14. **Rose Lane:** Extend the segment west to connect with Cottonwood Lane and the intersection of US 50A/US 95A.
15. **Carol Way:** Consider bridging the canal to create an east/west connection upon further development west.



3.5.3.2 Surface Improvements

1. **Andy Way:** Pave to provide east-west connection between Jenny's Lane and Winnies Lane.
2. **Gustafson Road:** Pave to provide a reliable eastern connection between Desert Shadows Lane and Farm District Road.
3. **Red Rock Road:** Pave northern extension to US 50.

3.5.3.3 Dead-End Neighborhoods

1. **Sage Street Development:** Provide access across the canal to Main Street. Connect to any future developments south of the neighborhood. Create access from back of neighborhood to any future connector roads in southwest Fernley.
2. **Jenny's Lane Neighborhood:** Create roadway access across the canal to Desert Shadows Lane via Jenny's Lane or Winnies Lane, which would better accommodate larger traffic volumes and emergency response vehicles. Alternatively, create canal access via Clover Lane to reduce neighborhood cut-through traffic, but this would require right of way acquisition and substantial roadway improvements.

3. **Wilson Way Neighborhood:** Create bicycle and pedestrian access to the high school via a bridge across the canal. The Desert Shadows Lane/Valley View Drive proposed connection is a potential location.
4. **Chisholm Trail Area:** Create alternate roadway connection to this developing area, potentially to Newlands Drive to the north or east to the proposed Nevada Pacific Parkway extension.

Others: There are a number of smaller areas that provide one access point, or limited access options, including the residential area north of Fremont Street and the Desert Lakes residential development which could be similarly benefitted by additional connections to the transportation network.

General: It is recommended that the City avoid permitting dead-end subdivisions or developments in the future to maximize connectivity.

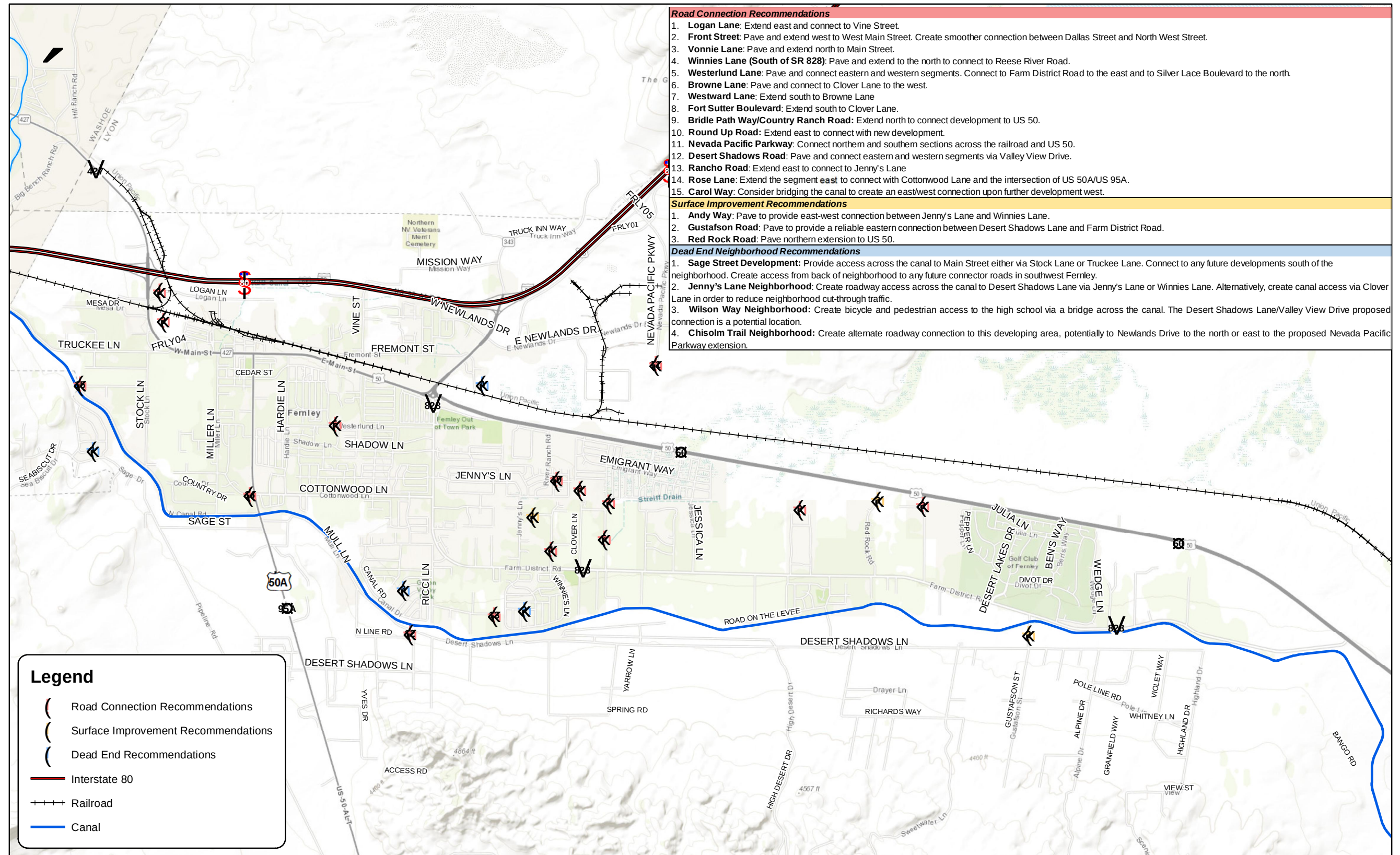


Figure 13 – Network Connectivity Recommendations

3.5.3.4 Traffic Calming Strategies

Paving roads or creating new connections through neighborhoods changes vehicle traffic patterns. Some locations where new connections or improvements are made may see an increase in traffic volumes. For instance, if Stock Lane were to cross the canal to connect into the Sage Street development, less volume would be expected along Sage Street entering the neighborhood, but increased volumes would be expected on Stock Lane. To maintain safety and discourage cut-through traffic, several traffic calming strategies may be considered:

- Maintaining low speed limits by installing speed feedback signs, speed humps, speed tables, etc.
- Reducing lane widths/numbers of lanes
- Adding protected bike lanes in each direction
- Adding curb extensions or bulb-outs
- Constructing median islands
- Constructing roundabouts
- Maintaining existing curves in the roadway to help slow traffic

Traffic calming strategies range from low cost and relatively easy to implement, to high-cost and more difficult to implement. Anywhere that new traffic calming strategies are deployed, the proposed strategy should be reviewed by a traffic professional to ensure the strategy will achieve the desired goals for the roadway facility.



CHAPTER 4 – FUTURE TRANSPORTATION TRENDS

Evolving transportation technologies are key to the mobility of people who live, work, and visit Fernley. The City must adapt to the changing landscape of transportation innovation, including ridesharing, connected and autonomous vehicles, public transit, and micromobility options.

4.1 Ridesharing

Ridesharing is an on-demand mobility service where passengers request, through a mobile app, to be dropped off or picked up at locations of their choosing.

As ride-sharing continues to gain popularity, designated safe locations to conduct loading and unloading of passengers, such as marked curbs or parking spaces compliant with Americans with Disabilities Act (ADA) standards, can improve safety, provide clarity to the user, and reduce unnecessary vehicle circulation.



Downtown Fernley may benefit by creating safe places for ride-sharing activities to occur, providing a convenient option for people to visit downtown, and designating a safe place for passenger loading and unloading.



4.2 Connected and Autonomous Vehicles

Connected and autonomous (self-driving) vehicles (CAVs) include multiple technologies that are still being researched, developed, and refined. CAVs will be equipped with on-board computing equipment capable of sensing its environment, including other vehicles, and navigating without constant human input. The vehicles will also be capable of relaying and receiving messages, warnings, and traveler information to and from other vehicles and road equipment.

To prepare for the technology, the City will need to invest in both infrastructure and data collection. Recommendations include ⁴:

- *Pavement markings*: FHWA has stated that automakers have indicated that pavement markings are the most significant infrastructure characteristic needed for CAVs. A program to update and maintain edgeline, centerline, and lane lines may be the most easily addressed CAV need. Consistent and uniform lane markings, including both placement and maintenance, are critical.
- *Signing*: Current CAV systems are confused by damaged, faded, or MUTCD noncompliant signs. CAVs require signing to be consistently placed and maintained at a much higher level than the common current practice.
- *Traffic signals*: As new traffic signals are constructed, or signals are upgraded, new model controllers should include internet protocol (IP)-ready ports and National Transportation Communications for Intelligent System Protocol (NTCIP) compliance for full-scale CAV deployment and the ability for integration into advanced traffic management systems (ATMS).
- *Maintenance*: Pavement maintenance and weather maintenance is recommended. Poorly maintained road conditions make it difficult for CAVs to predict the behavior of other road users. A driver can judge the behavior of a bicyclist who swerves around a pothole, but it is difficult for CAVs to make the same assessment. Presence of snow and rain obscure pavement markings and signing, making it difficult for camera systems to detect and interpret them. It may be necessary to maintain roads to a higher standard than for human drivers. The best practice is to implement timely maintenance, particularly when significant surface degradation, such as potholes, occur.
- *Consistency and standardization*: Review signing and marking practices to ensure signing and markings are consistent in terms of type of sign used, placement, and application. For example, stop bars should be consistently placed in relation to the location of the stop sign, curb returns, and crosswalks.
- *Communications infrastructure*: A road database inventory will be one of the most fundamental elements and will require highly-detailed information such as lane geometry, horizontal and vertical curve characteristics, and speed limits. Some features will require decimeter-level accuracy, such as stop bars and some signs.

4.3 Transit

Transit offers the potential to maximize the movement of people between residential areas and employment centers, while consuming a minimal amount of space. As the city continues to grow and residential and commercial density increases, public transit should be considered.

As mega-factories, large-scale industrial, and other developments continue to be constructed in Fernley and the surrounding areas, transit service can help move employees from home to work without needing to construct new and wider streets. Street width is a finite resource and favors the most space-efficient modes of transportation. While a street's width may not be increased, there is potential for reconstruction of roadway section depth to support the additional heavy traffic (bus) loading. While transit itself is not a new technology, its application within the city is still in the future and should be considered.

⁴ <http://www.dot.state.mn.us/research/reports/2019/201918.pdf>

4.3.1 Park-and-Ride Lots

A park-and-ride lot near the western edge of the city would accommodate commuter travelers to and from the TRIC and the Reno-Sparks area along I-80.



It is recommended that the City construct park-and-ride lots with amenities such as bike lockers, covered/sheltered bus stops, adequate security, restrooms, and micromobility options. It is recommended that the City initiate a study to further evaluate the need and identify and acquire an adequate parcel of land on which to construct the park-and-ride lot.

4.3.2 Bus Service

Implementing bus service throughout the city would provide a mobility option for those with current limited transportation options. Residents with zero- or single-car households, disabled populations, and age-restricted populations (under 16 or over 65 years) are more likely to rely on transit services. Bus service would contribute to the overall transportation network and increase transit infrastructure required for the service. Infrastructure such as bus stop shelters, bus stop pads, pull-outs for bus stops along a roadway, bicycle racks and storage areas, etc. would be required. It is recommended that a study be conducted based on zoned land use, growth projections, and anticipated capital and operations costs to identify target dates for bus service implementation as well as service routing and bus frequencies.

4.4 Micromobility



Micromobility modes consist of bike-share or scooter-share. Typically, these modes utilize bike lanes and sidewalks (though many agencies prohibit them on sidewalks). As this is an emerging technology, it is still being determined how best to provide, store, regulate, and enforce the use of micromobility devices. The city will need to consider

ordinance and policy changes to accommodate these devices. Micromobility has emerged as a viable option for last-mile trips – helping people get from a bus stop to their destination. This has the benefit of enabling greater use of transit, where available.

It is recommended that the City be open to micromobility and potential future planning of infrastructure to accommodate this mode as its mode share continues to increase and interest increases in Fernley.



CHAPTER 5 – TRANSPORTATION ANALYSIS SCENARIOS

A travel analysis tool was prepared for the City within Synchro 10 Traffic Simulation Software. The purpose of the travel analysis tool is to aid in identifying the impacts of different growth rates and development scenarios to the transportation network throughout the city.

Three population growth and development scenarios were evaluated. Each scenario assumed different levels of growth and development throughout the city as described in the following sections. LOS and total delay results for the major intersections in the network are reported.

5.1 Growth and Development Scenario 1 – Standard Growth

Growth and Development Scenario 1 uses available traffic data from NDOT to determine historic growth rates and applies a calculated annual growth rate to existing traffic volumes in the City.

AADT volume data was obtained from the NDOT 2018 Annual Traffic Report for roadways throughout the city. From the data (2015-2018) for state roads, a City-wide annual growth rate of five percent (5%) was calculated. An excerpt of the NDOT 2018 Annual Traffic Report used in this analysis is included in **Appendix I**.

Standard
Growth



*A city-wide annual
growth rate of 5%*

The annual five percent (5%) growth rate was applied to all roadways for which data was available to estimate future traffic volumes for the horizon years. Future traffic volumes were calculated for

5-, 10-, and 20-year planning horizons, or 2025, 2030, and 2040, respectively. Intersection LOS and total delay were calculated for intersections where data was available.

A summary of LOS and total delay for major intersections (without any traffic mitigation or improvements at the intersections) for each horizon year are shown in **Table 6**. Detailed analysis reports for Growth and Development Scenario 1 – Standard Growth can be found in **Appendix J**.

Table 6 – Scenario 1, Standard Growth Conditions Analysis Results

Intersection	2025		2030		2040	
	LOS/Total Delay (s)		LOS/Total Delay (s)		LOS/Total Delay (s)	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Main Street/US 50A/US 95A	B / 12.3	B / 18.0	B / 14.2	D / 43.9	E / 72.9	F / **
Main Street Roundabout*	A / 8.7	F / 115.9	D / 30.4	F / 213.7	F / 197.3	F / **
Chisolm Trail/Fremont Street/US 95A	C / 30.3	E / 56.2	C / 31.8	F / 110.1	E / 65.2	F / **
Newlands Drive/US 95A	C / 29.6	D / 42.3	C / 29.9	E / 57.8	D / 50.2	F / 183.7
Cottonwood Lane/US 50A/US 95A	E / 40.3	E / 45.4	F / 158.5	F / 235.3	F / **	F / **
Cottonwood Lane/Farm District Road	E / 48.8	F / 179.1	F / **	F / **	F / **	F / **

*Roundabout intersection analyzed with Sidra 8 Intersection software – roundabouts are analyzed based on the delay criteria for unsignalized intersections.

**Calculated delay exceeds 300 seconds.

As shown in **Table 6**, the currently unsignalized Cottonwood Lane intersections with US 50A/US 95A and Farm District Road show unacceptable LOS and delays in the 2025 analysis and beyond. The other intersections along US 95A also show unacceptable LOS and long delays in the 2030 PM peak hour, and 2040 peak hours.

It should be noted that the results shown in **Table 6** account for no physical intersection modifications or improvements from the existing condition. Such an analysis helps identify locations where improvements should be recommended and additional connectivity, as recommended in **Section 3.5**, may provide alternative routing options.

5.2 Growth and Development Scenario 2 – High Growth

Growth and Development Scenario 2 applies a growth rate of ten percent (10%) to the entire City, instead of the calculated five percent (5%) used in Scenario 1.

Scenario 2 assesses conditions if a high growth rate (twice the historic annual growth of the City), were experienced, and assesses how the transportation system would accommodate the increased traffic. Future traffic volumes for 2025, 2030, and 2040 were estimated using a ten percent (10%) annual growth rate.

High
Growth



*Applies a growth
rate of 10%*

Scenario 2 represents extreme growth throughout the city. The City is not anticipated to sustain extreme growth for long periods; however, knowing the capacity and capabilities of the existing transportation system helps to prioritize recommended improvements and strategies for the City moving forward.

A summary of the LOS and total delay for major intersections throughout the city for each horizon year for Scenario 2 are shown in **Table 7**. Detailed analysis reports for Growth and Development Scenario 2 can be found in **Appendix K**.

Table 7 – Scenario 2, High Growth Conditions Analysis Results

Intersection	2025		2030		2040	
	LOS/Total Delay (s)		LOS/Total Delay (s)		LOS/Total Delay (s)	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Main Street/US 50A/US 95A	B / 14.7	D / 52.1	F / 80.4	F / **	F / **	F / **
Main Street Roundabout*	F / 37.7	F / 230.6	F / 205.7	F / **	F / **	F / **
Chisolm Trail/Fremont Street/US 95A	C / 32.4	F / 125.3	E / 70.2	F / **	F / **	F / **
Newlands Drive/US 95A	C / 31.7	E / 59.3	D / 52.1	F / 195.1	F / **	F / **
Cottonwood Lane/US 50A/US 95A	F / 189.3	F / 293.0	F / **	F / **	F / **	F / **
Cottonwood Lane/Farm District Road	F / **	F / **	F / **	F / **	F / **	F / **

*Roundabout intersection analyzed with Sidra 8 Intersection software – roundabouts are analyzed based on the delay criteria for unsignalized intersections.

**Calculated delay exceeds 300 seconds.

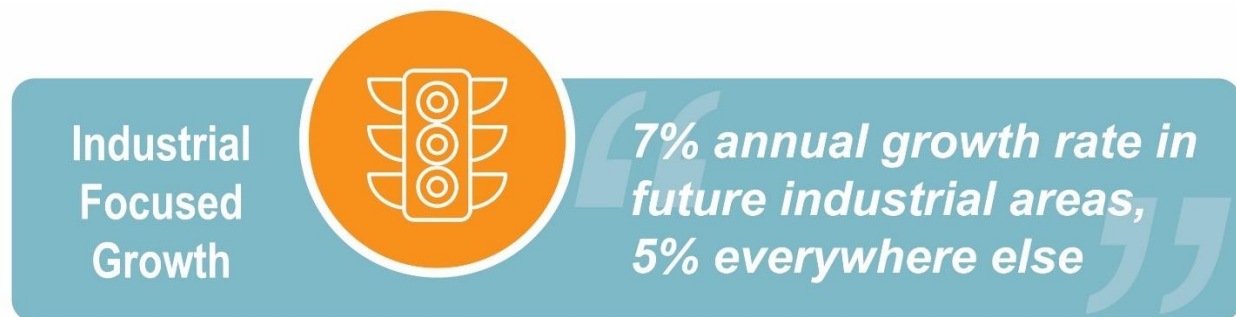
An extreme high annual growth rate for an extended period, not surprisingly, results in poor results. PM peak hour delays are high for most intersections, particularly in 2030 and 2040.

It is not anticipated that a driver would incur the level of delay projected by the analysis. Instead, motorists and others would adapt to the local conditions and find alternative routes. The use of alternative routes would likely stress the transportation system in different ways than currently experienced and create delays in areas where not currently anticipated. If the annual growth in this scenario were to become reality, the City would need to place strong emphasis on moving people rather than moving vehicles and rapidly develop a strong transit and multimodal transportation network.

5.3 Growth and Development Scenario 3 – Industrial Focused Growth

In the Growth and Development Scenario 3 – Industrial Focused Growth, a seven percent (7%) annual growth rate was used for intersections near the industrial growth area(s) including the Main Street Roundabout, US 95A/Chisolm Trail/Fremont Street intersection, and US 95A/Newlands Drive intersection. The remaining intersections in the analysis, representing the rest of the city, had the historical five percent (5%) annual growth rate applied, including the Main Street/US 50A/US 95A, Cottonwood Lane/US 50A/US 95A, and Cottonwood Lane/Farm District Road intersections.

It is assumed the area of the city north/northeast of I-80 will continue to grow with an industrial focused growth. In the 2018 City of Fernley Comprehensive Master Plan⁵, this area was identified as the North Fernley FDA and has the potential to become a large master planned employment center with commercial services and possible high-density housing.



A summary of the LOS and total delay for the major intersections throughout the city for each horizon year for Scenario 3 are shown in **Table 8**. Detailed analysis reports for Growth and Development Scenario 3 can be found in **Appendix L**.

Table 8 – Scenario 3, Industrial-Focused Growth Conditions Analysis Results

Intersection	2025		2030		2040	
	LOS/Total Delay (s)		LOS/Total Delay (s)		LOS/Total Delay (s)	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Main Street/US 50A/US 95A	B / 12.3	B / 18.0	B / 14.2	D / 43.9	E / 72.9	F / **
Main Street Roundabout*	B / 13.8	F / 157.7	F / 85.4	F / **	F / **	F / **
Chisolm Trail/Fremont Street/US 95A	C / 31.2	E / 72.1	D / 54.3	F / 202.5	F / 217.0	F / **
Newlands Drive/US 95A	C / 31.0	D / 50.9	D / 36.9	F / 85.7	F / 172.7	F / **
Cottonwood Lane/US 50A/US 95A	E / 40.3	E / 45.4	F / 158.5	F / 235.3	F / **	F / **
Cottonwood Lane/Farm District Road	E / 48.8	F / 179.1	F / **	F / **	F / **	F / **

*Roundabout intersection analyzed with Sidra 8 Intersection software – roundabouts are analyzed based on the delay criteria for unsignalized intersections.

**Calculated delay exceeds 300 seconds.

⁵ City of Fernley Comprehensive Master Plan, August 2018, Chapter 3, Section 3.5, Page 71

Similar to Scenario 2, the Scenario 3 analysis shows significant delay and poor LOS. It is not anticipated that a driver would incur the amount of delay resulting from the analysis. Instead, motorists and others will adapt to the local conditions and find alternative routes. If the annual growth in this scenario were to become reality, the City would need to place strong emphasis on moving people rather than moving vehicles and rapidly develop a strong transit and multimodal transportation network.

The subsequent sections identify improvements and strategies to help alleviate anticipated growth in the city and accommodate traffic long into the future.



CHAPTER 6 – RECOMMENDED IMPROVEMENTS AND STRATEGIES

With the information presented in this TMP, a set of improvements and strategies are recommended to help the City meet the needs of the transportation system for the 5-, 10-, and 20-year planning horizons. The recommended improvements are categorized by planning horizon year.

Other maintenance considerations, general strategies, and other recommended improvements not included in the planning horizon year recommendations are also presented for the City to continue developing a multimodal transportation network that meets their goals and objectives and that best serves residents and visitors of Fernley.

6.1 Recommended Improvements

Building upon the analysis presented as part of the transportation scenarios and consistent with the goals of this TMP, the following recommended improvements for the 5-, 10-, and 20-year planning horizons should be considered to develop a multimodal transportation network. In addition, multimodal (bicycle, pedestrian, transit) solutions are recommended.

Five-year planning horizon recommended improvements are specific to roadways and intersections; 20-year planning horizon recommended improvements are strategies to be applied to the entire transportation network.

Figure 14, Figure 15, Figure 16 display the recommended improvements to the city's transportation network as found and numbered in the following 5-, 10-, and 20-year tables (**Table 9, Table 10, Table 11**), respectfully.



Table 9 – 5-year Planning Horizon Recommended Improvements (2025)

Project Name	Improvement Type	Project Description
Lead Agency: City of Fernley		
Park-and-Ride*	Transit	Conduct a park-and-ride study to identify the necessity of and a preferred location and construct a park-and-ride facility for commuters to the Tahoe Reno Industrial Center and the Reno-Sparks area
Farm District Road Multi-Use Path*	Multi-Use Path	Extend the Farm District Road multi-use path from East Valley Elementary School to US 50 (Phase 4) (existing programmed NDOT project LY20140001 extends the path 1.75 miles from Crimson Road to Jasmine Lane, and Phase 3 of the project extends the path to East Valley Elementary School)
Lead Agency: NDOT		
Main Street Improvements*	Bicycle Facilities	Evaluate extending bicycle lanes on Main Street from Miller Lane to Marie Drive
	Crosswalks	Assess upgrading existing marked crosswalks with additional signage and painted roadway markings that cross Main Street/US 50A/US 95A from Miller Lane to Hardie Lane
	Pedestrian Signals	Evaluate crossings along Main Street (US 50A/US 95A) downtown to be signalized/flashing
Cottonwood/US 50A/US 95A Signal*	Traffic Signal	Coordinate with NDOT to signalize the Cottonwood Lane/US 50A/US 95A intersection
Nevada Pacific Parkway Extension	Roadway Improvement	Extend existing Nevada Pacific Parkway south across the Union Pacific Railroad (UPRR) to existing US 50 to provide access to I-80 north and alleviate the one segment in the City over capacity (US 95A between the Main Street Roundabout and I-80)
Nevada Pacific Parkway/US 50 ICE	Intersection Control Evaluation	Evaluate the intersection control of the Nevada Pacific Parkway/US 50 intersection for signalization or roundabout in coordination with connection to Nevada Pacific Parkway
Main Street Roundabout Improvements*	Intersection Improvement	Evaluate and redesign the Main Street Roundabout for improved operations, capacity and safety
US 95A Improvements*	Roadway Capacity and Safety	Assess capacity and provide improvements to US 95A between the Main Street Roundabout and I-80 to provide increased capacity and safety

*A planning-level cost estimate for this improvement is included in the following section

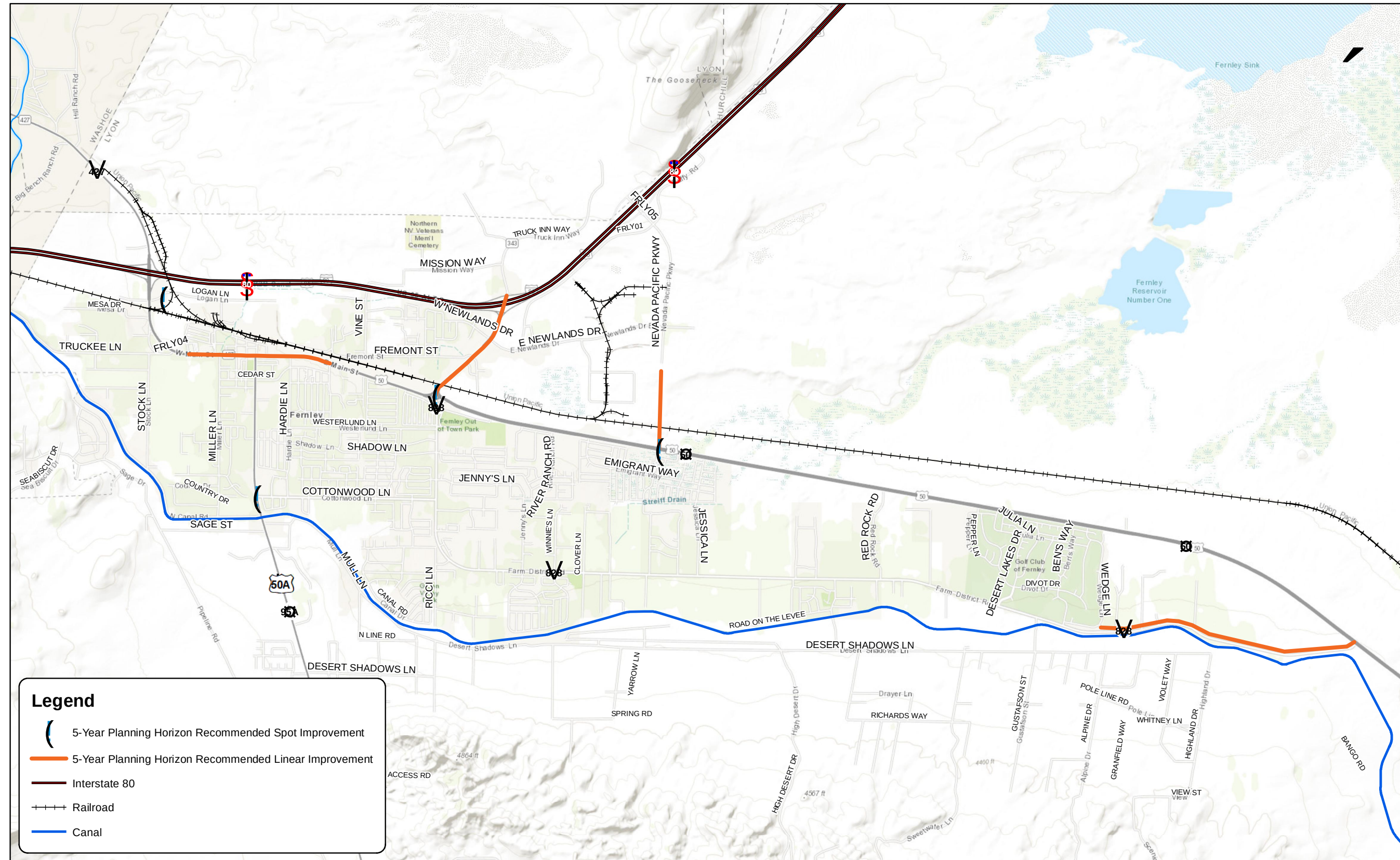
Table 10 – 10-year Planning Horizon Recommended Improvements (2030)

Project Name	Improvement Type	Project Description
Lead Agency: City of Fernley		
US 50 to Desert Shadows Connection	Roadway Capacity and Safety	Construct paved roadway connection over the Truckee Canal as proposed with the Friendly 5 Ranch development (approximately 0.75 miles west of existing Clearwater Parkway bridge) and provide a connection to US 50
Sage Street Connectivity*	Roadway Capacity and Safety	Construct paved connection over the Truckee Canal to provide secondary access to Sage Street neighborhood
Desert Shadows Improvements*	Paving; New Roadway; Multi-Use Path	Pave Desert Shadows Lane and provide a multi-use path for the extents; consider project phasing from west to east
Lead Agency: NDOT		
Railroad Underpass Improvements*	Roadway Capacity and Safety	Widen the railroad underpass on Main Street; consider multi-modal improvements to Main Street between Pilot Road and Miller Lane (approximately 0.75 miles) for increased capacity and safety
US 50A/US 95A Improvements	Roadway Capacity and Safety	Consider improvements to /US 50A/US 95A between Main Street/US 50A/US 95A and Sage Street for increased capacity and safety; evaluate turning movements and signal operations at the US 50A/US 95A intersection
Bicycle Improvements (West)*	Bicycle Facilities	Improve Main Street/SR 427 to provide bicycle facilities from Fernley to the Lyon County line to connect eventually to the proposed future Tahoe Pyramid Trail

*A planning-level cost estimate for this improvement is included in the following section

Table 11 – 20-year Planning Horizon Recommended Improvements (2040)

Project Name	Improvement Type	Project Description
Lead Agency: NDOT		
North Fernley Roadway	New Roadway	Evaluate connecting I-80 Interchanges north of the City with a new alignment through the North Fernley FDA employment area
Western Bypass	New Roadway	Evaluate a western bypass of Fernley (connect I-80 and US 50A/US 95A// from the Wadsworth exit) to access future Southwest Fernley FDA residential area and provide an alternative access from I-80 to US 50A/US 95A
Farm District Road Improvements	Roadway Capacity and Safety	Assess capacity and consider improvements to the Main Street Roundabout and Red Rock Road for increased capacity and safety to maintain a consistent cross section of Farm District Road (three-lanes with a two-way left-turn lane and dedicated right turn lanes where applicable), as proposed in the City of Fernley Comprehensive Master Plan (2018)
Cottonwood Improvements	Roadway Capacity and Safety	Assess capacity and consider improvements to Cottonwood Lane between US 50A/US 95A and Farm District Road to provide increased capacity and safety
I-11 Connection	New Traffic Interchange	Evaluate potential new traffic interchange along I-80 between Exit 46 and Exit 48 as part of the new Interstate 11 alignment



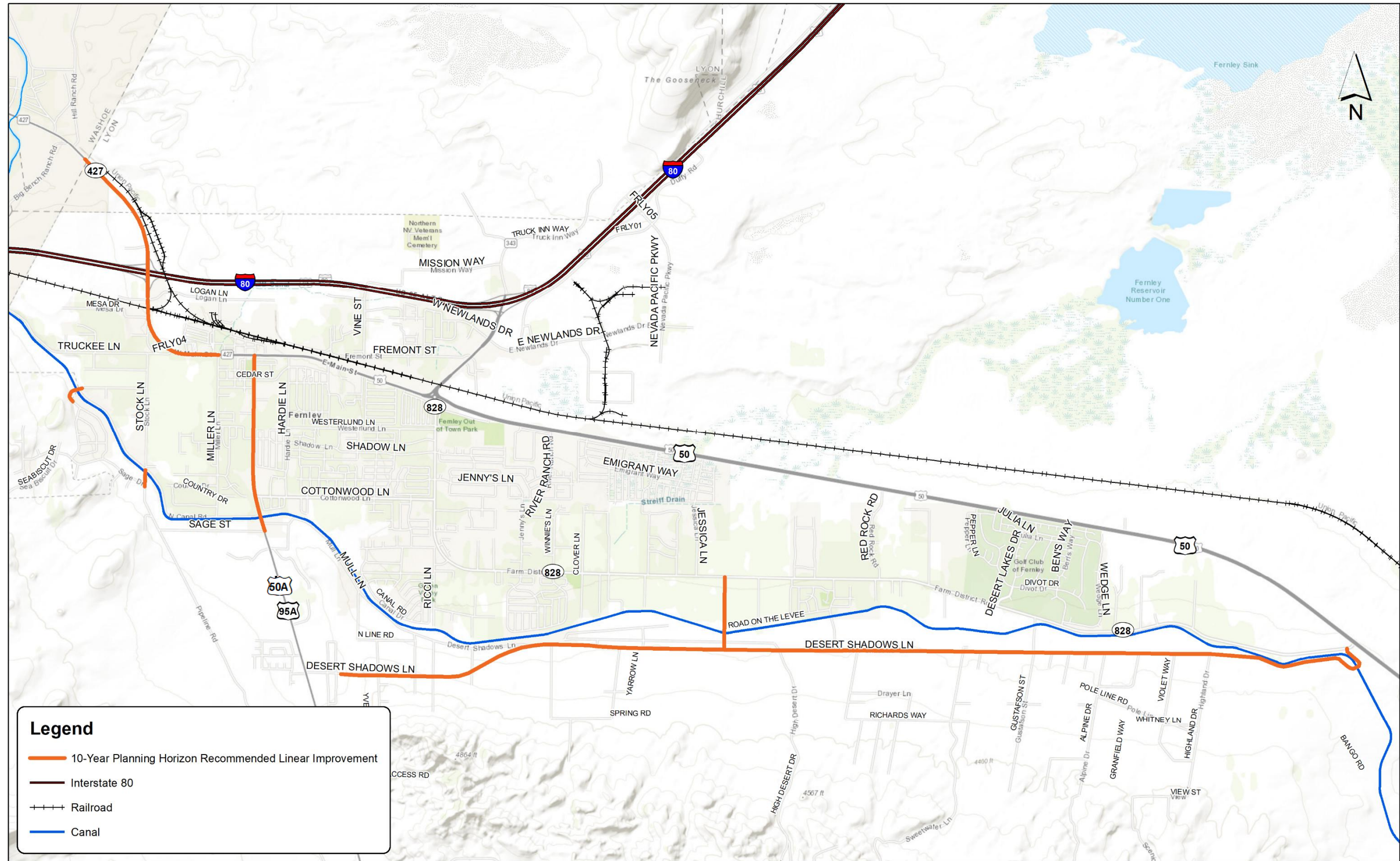


Figure 15 – 10-year Planning Horizon Recommended Improvements (2030)

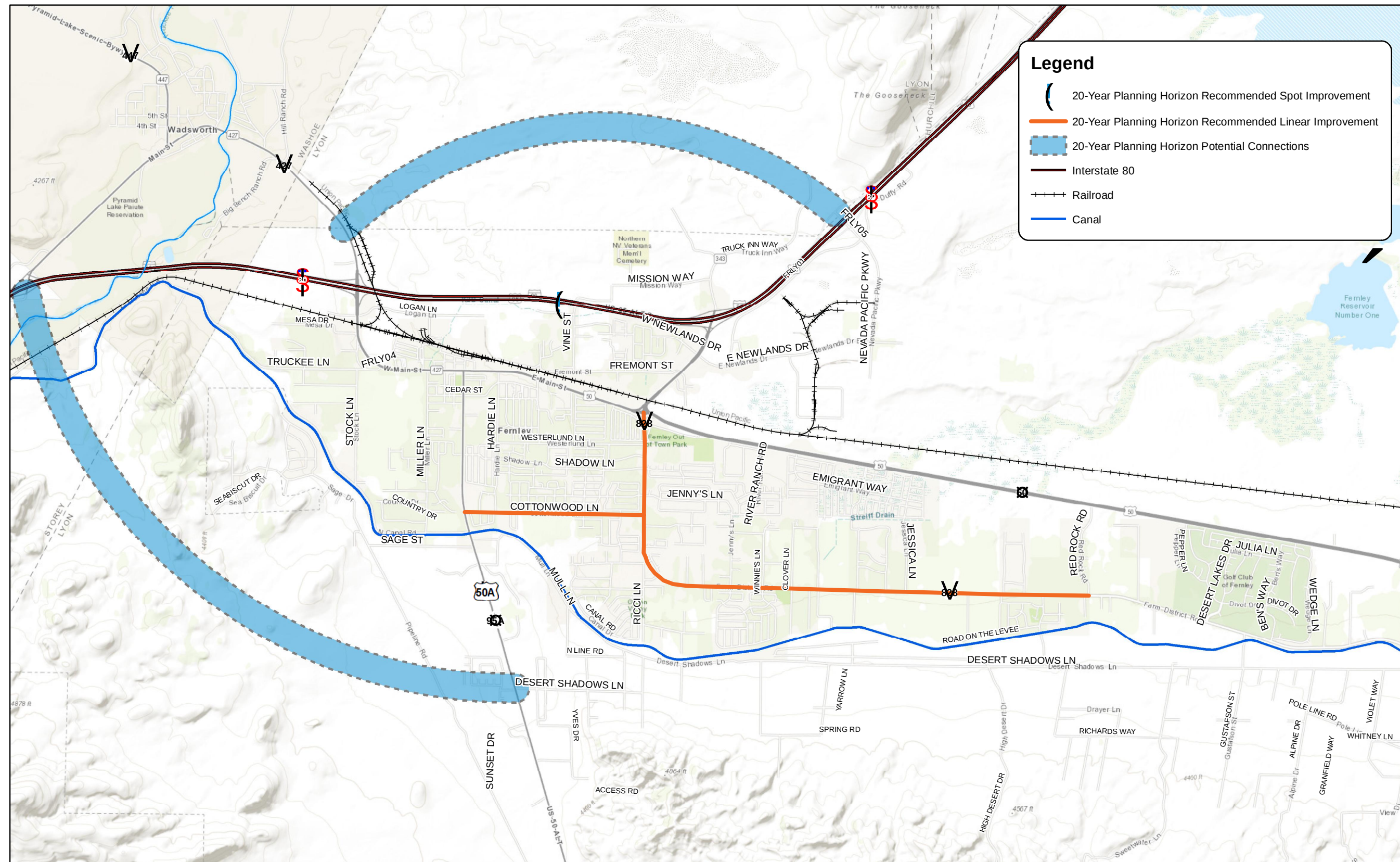


Figure 16 – 20-year Planning Horizon Recommended Improvements (2030)

6.2 Public Transit Network Concept

A public transit network concept utilizing multimodal accessibility strategies is provided in this section. The proposed public transportation network concept will require additional planning work as summarized later in **Section 7.2** including public outreach, market research, stakeholder collaboration, decision on transit type and service, and policy development.

The recommended improvements for a public transit network concept include scheduled transit service and facilities servicing the following key locations:

- Residential center of the city (Cottonwood Lane, Westerlund Lane, Jenny's Lane)
 - Care should be taken when considering minor collector roadways for transit service facilities, so as not to limit potential funding sources (See **Appendix M**)
- Main Street (US 50A/US 95A) downtown area
- Future North Fernley FDA employment area
- Future Southwest Fernley FDA residential area
- Industrial/commercial area north of US 50 between US 95A and proposed Nevada Pacific Parkway

In addition to the key locations, it is anticipated that transit would have additional stops/service along the proposed routes and include key multimodal transfer points such as park-and-ride lots, once available. It is recommended that the City work closely with NDOT during transit concept development and planning as likely transit routes will traverse State-maintained facilities including US 50A/US 95A, US 95A, US 50, SR 828 (Farm District Road), etc.

The origin-destination data collected as part of this project supports further analysis of a park-and-ride lot in the City of Fernley to support commuter travel west of the city. It is recommended that the City initiate a study to evaluate the necessity and identify and acquire an adequate parcel of land on which to construct a park-and-ride lot.

It is recommended that a study be conducted based on zoned land use, growth projections, and anticipated capital and operations costs to identify target dates for bus service implementation as well as service routing and bus frequencies.

6.3 Other Maintenance Considerations

The need for regular pavement maintenance is critical, as the longer maintenance is deferred, the faster pavement conditions will deteriorate.

As described in the CAMPO 2040 Regional Transportation Plan, both Carson City and Douglas County are working with the University of Nevada, Reno (UNR) Pavement Engineering Program to improve pavement management. RTC Washoe has also coordinated with UNR on similar studies and the City has also utilized these resources for time frames and implementation strategies for maintenance.

The program partnership is identifying cost-effective timing when maintenance treatments should be applied to maximize investment benefits. Due to the backlog of deferred maintenance that agencies are experiencing and the need to address deteriorating unsafe roadways, the windows of opportunity for properly-timed maintenance improvements are being missed. The City has a

proactive preventative maintenance schedule for existing roadways and focus should be placed on reconstructed roadways, as this maintenance can be more expensive.

Although the studies mentioned do not specifically address potential funding opportunities, it may be an opportunity to optimize maintenance expenditures. The City should continue to update their Pavement Management Program (PMP) and identify funding for improvements as needed.

6.4 General Strategies

In addition to the specific improvements projects previously listed for roadways and intersections, overall strategies should also be implemented that will aid the City to develop an efficient multimodal transportation network.

Strategies for the City to consider to better accommodate future demands on the transportation network include:

- Adopt an Access Management Policy
- Create development and traffic impact fees for new developments to help generate funds for infrastructure improvements
- Regularly evaluate high crash concentration areas/intersections for safety improvements
- Incorporate active transportation planning and facilities into City standards, new developments, and asset management
- Avoid permitting dead-end subdivisions or development in the future to maximize network connectivity for the transportation system
- Regularly evaluate high-volume intersections for proper intersection treatments (signalization, roundabout installation, optimized timing, crossing enhancements, etc.)
- City should consider adopting SR 828 from NDOT in the case that a multimodal facility along Desert Shadows Lane proves infeasible
- Maintain and update the City's travel analysis tool housed within Synchro 10 Traffic Simulation Software annually
- Continue to evaluate incorporating City of Fernley data into the RTC Washoe TDM and/or pursue a northern Nevada Regional TDM
- Update the city roadway functional classifications to reflect the classification definitions and categories as found in the FHWA procedures and used by both NDOT and FHWA and coordinate future modifications with NDOT; This should also be updated in the 2018 Comprehensive Master Plan
- The following data should be considered for collection/development to aid in making strategic decisions in the future regarding the transportation network and infrastructure in the city:
 - Active transportation facilities (pedestrian and bicycle)
 - Transit facilities and ridership (when a transit system is initiated)
 - Intersection operations
 - Sidewalk inventory
 - Annual traffic counts
 - Socio-economic data including population and employment
 - Communications network/Intelligent Transportation Systems (ITS) related infrastructure

- Pedestrian facility use data (when and where traffic counts are required per City of Fernley design standards for proposed developments)

6.5 Other Recommended Improvements

The improvements listed in **Table 12** are improvements that should be evaluated and reviewed annually as the transportation network continues to expand and as prioritization may change to re-categorize or introduce new projects.

Table 12 – Other Recommended Improvements

Project Name	Improvement Type	Project Description
Fernley Transit System	Transit	Consider scheduled transit service and facilities throughout the City (bus/shuttles) to service the following locations: ▪ Residential center of the City (Cottonwood Lane, Westerlund Lane, Jenny's Lane) ▪ Main Street (US 50A/US 95A) downtown area ▪ Future North Fernley FDA employment area ▪ Future Southwest Fernley FDA employment area ▪ Industrial/commercial area north of US 50 between US 95A and proposed Nevada Pacific Parkway
Mission Way/Vine Street Improvements	Roadway Capacity and Safety	Connectivity of the Veteran's Parkway/Mission Way area; secondary access
US 50A/US 95A Improvements (South)	Roadway Capacity and Safety	Assess capacity and consider improvements to US 50A/US 95A from Main Street to the south Fernley City limits to provide increase capacity and safety
Various Intersections	Intersection Control Evaluations	The following intersections should be monitored for traffic growth as they may warrant traffic signals or other intersection control in the future: ▪ I-80 Ramps/Nevada Pacific Parkway ▪ Nevada Pacific Parkway/Stanley Drive (SR 343) ▪ Multiple locations along Nevada Pacific Parkway, pending future development ▪ Nevada Pacific Parkway/E. Newlands Drive ▪ US 50/Nevada Pacific Parkway ▪ US 50/Desert Rose ▪ US 50/Farm District Road (east connection, not at the Main Street Roundabout) ▪ US 50/River Ranch Road (currently planned for signalization by NDOT) ▪ Farm District Road/Wilson Way ▪ Farm District Road/Winnies Lane ▪ Farm District Road/Desert Lakes Drive ▪ US 50A/US 95A/Shadow Lane ▪ US 50A/US 95A/Sage Drive ▪ Main Street/Pilot Road

Table 12 – Other Recommended Improvements (continued)

Project Name	Improvement Type	Project Description
Various Roadway Connections	Connectivity, Roadway Capacity, and Safety	The following locations were identified to enhance network connectivity: - Logan Lane: Extend east and connect to Vine Street. - Front Street: Pave and extend west to West Main Street. Create smoother connection between Dallas Street and North West Street. - Vonnie Lane: Pave and extend north to Main Street. - Winnies Lane (South of SR 828): Pave and extend to the north to connect to Reese River Road. - Westerlund Lane: Pave and connect eastern and western segments. Connect to Farm District Road to the east and to Silver Lace Boulevard to the north. - Browne Lane: Pave and connect to Clover Lane to the west. - Westward Lane: Extend south to Browne Lane. - Fort Sutter Boulevard: Extend south to Clover Lane. - Bridle Path Way/Country Ranch Road: Extend north to connect development to US 50. - Round Up Road: Extend east to connect with new development. - Nevada Pacific Parkway: Connect northern and southern sections across the railroad and US 50. - Rancho Road: Extend east to connect to Jenny's Lane. - Rose Lane: Extend the segment east to connect with Cottonwood Lane and the intersection of US 50A/US 95A.
Various Surface Improvements	Roadway Capacity and Safety	The following roadways are recommended for surface improvements: - Andy Way: Pave to provide east-west connection between Jenny's Lane and Winnies Lane. - Gustafson Road: Pave to provide a reliable eastern connection between Desert Shadows Lane and Farm District Road. - Red Rock Road: Pave northern extension to US 50.

Table 12 – Other Recommended Improvements (continued)

Project Name	Improvement Type	Project Description
Various Dead-End Improvements	Connectivity, Roadway Capacity, and Safety	The following locations were identified as significant “dead-end” neighborhoods that would benefit from increased connectivity: ▪ Sage Street Development: Provide access across the canal to Main Street. Connect to any future developments south of the neighborhood. Create access from back of neighborhood to any future connector roads in southwest Fernley. ▪ Jenny’s Lane Neighborhood: Create roadway access across the canal to Desert Shadows Lane via Jenny’s Lane or Winnies Lane, which would better accommodate larger traffic volumes and emergency response vehicles. Alternatively, create canal access via Clover Lane in order to reduce neighborhood cut-through traffic, but this would require right of way acquisition and substantial roadway improvements. ▪ Wilson Way Neighborhood: Create bicycle and pedestrian access to the high school via a bridge across the canal. ▪ Chisholm Trail Area: Create alternate roadway connection to this developing area, potentially to Newlands Road to the north or east to the proposed Nevada Pacific Boulevard extension. ▪ Others: There are a number of smaller areas that provide one access point, or limited access options including the residential area north of Freemont Street and the Desert Lakes residential development which could be similarly benefitted by additional connections to the transportation network.
Various Active Transportation Improvements	Active Transportation, Connectivity	▪ Improve SR 427 to provide a bicycle facility to connect Fernley to Wadsworth. ▪ Provide a bicycle facility along Farm District Road. ▪ Widen the railroad underpass on SR 427 entering west Fernley to remove a pinch point for pedestrians and bicycles. ▪ Widen shoulders between Silver Springs and Fernley. ▪ Install a bicycle lane along Main Street (US 50A/US 95A) in Fernley. ▪ Add a bicycle lane on US 50A/US 95A from Main Street to Royal Oaks Drive. ▪ Install bicycle wayfinding signage along US 50 throughout the entire county. ▪ Install a paved shoulder along US 50 throughout the entire county.

6.6 Planning-Level Cost Estimates

In coordination with the City of Fernley and the Technical Advisory Committee (TAC) for this project, planning-level cost estimates were developed for select recommended improvements as identified in **Table 13**. Detailed breakdowns, including assumptions and potential challenges for each project are included in **Appendix N**. Unit cost escalations were taken from the NDOT Unit Price Sheet, resulting in a 15.97% escalation for 2025 construction and 34.57% escalation for 2030 construction.

In addition to the planning-level cost estimates, one-page project summaries for each recommended improvement included in **Table 13** are provided in **Appendix O**.

Table 13 – Planning-Level Cost Estimates

Project Name	Improvement Type	Project Description	Planning Horizon Year	Planning-Level Cost Estimate
Lead Agency: City of Fernley				
Park-and-Ride	Transit	Conduct a park-and-ride study to identify the necessity of, the preferred location for, and construct a park-and-ride facility for commuters to the Tahoe Reno Industrial Center and the Reno-Sparks area	2025	\$399,000 (50-space lot); \$213,000 (25-space lot)
Farm District Road Multi-Use Path	Multi-Use Path	Extend the Farm District Road multi-use path from East Valley Elementary School to US 50 (Phase 4) (existing programmed NDOT project LY20140001 extends the path 1.75 miles from Crimson Road to Jasmine Lane, and Phase 3 of the project extends the path to East Valley Elementary School)	2025	\$1,099,000
Sage Street Connectivity	Roadway Capacity and Safety	Construct paved connection over the Truckee Canal to provide secondary access to Sage Street neighborhood	2030	\$2,350,000 (Carol Way); \$2,119,000 (Stock Lane)
Desert Shadows Improvements	Paving; New Roadway; Multi-Use Path	Pave Desert Shadows Lane and provide a multi-use path for the extents; consider project phasing from west to east	2030	\$14,785,000
Lead Agency: NDOT				
Main Street Improvements	Bicycle Facilities	Extend bicycle lanes on Main Street from Miller Lane to Marie Drive	2025	\$443,000
	Crosswalks	Upgrade 10 existing marked crosswalks with additional signage and painted roadway markings that cross Main Street (US 50A/US 95A) from Miller Lane to Hardie Lane		
	Pedestrian Signals	Provide/reconstruct up to two crossings along Main Street (US 50A/US 95A) downtown to be signalized/flashing		
Cottonwood/US 50A/US 95A Signal	Traffic Signal	Coordinate with NDOT to signalize the Cottonwood Lane/US 50A/US 95A intersection	2025	\$478,000
Main Street Roundabout Improvements	Intersection Improvement	Evaluate and redesign the Main Street Roundabout for improved operations, capacity, and safety	2025	\$7,418,000 (two-lane); \$5,244,000 (one-lane)
US 95A Improvements	Roadway Capacity and Safety	Assess capacity and provide improvements to US 95A between the Main Street Roundabout and I-80 to provide increased capacity and safety	2025	\$1,567,000
Railroad Underpass Improvements	Roadway Capacity and Safety	Widen the railroad underpass on Main Street; consider improvements to Main Street between Pilot Road and Miller Lane (approximately 0.75 miles) for increased capacity and safety	2030	\$23,325,000
Bicycle Improvements (West)	Bicycle Facilities	Improve Main Street/SR 427 to provide bicycle facilities from Fernley to the Lyon County line to connect eventually to the proposed future Tahoe Pyramid Trail	2030	\$895,000

6.7 Other Strategies

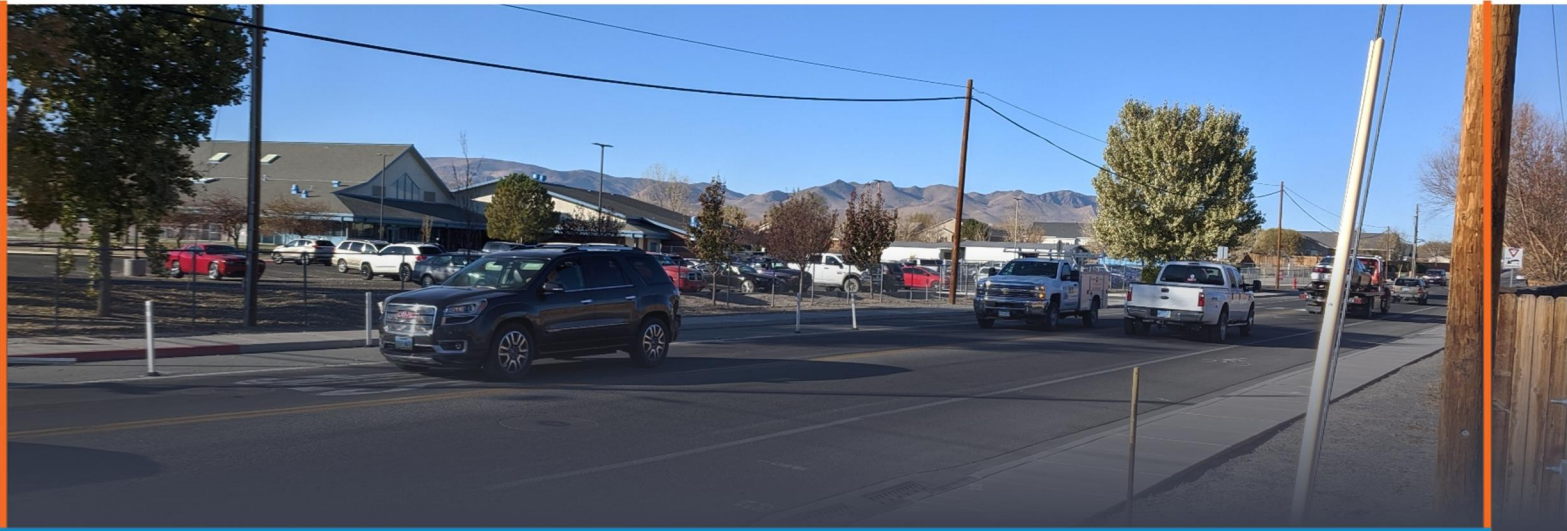
Table 14 provides a summary of the other strategies identified throughout the TMP that are recommended for the City of Fernley.

Table 14 – Other Strategies

Project Name	Improvement Type	Project Description
Access Management Plan	Study/Plan	Develop and adopt an Access Management Policy
Impact Fees	Study/Plan	Develop traffic impact fees for new developments to help generate funds for infrastructure improvements
Safety Evaluation	Routine Evaluation	Regularly evaluate high-crash-concentration areas/intersections for safety improvements
Active Transportation Standards	Design Standards Review	Incorporate active transportation planning and facilities into City standards, new developments, and asset management
Development Review	Policy	Avoid permitting dead-end subdivisions or development to maximize network connectivity for the transportation system
Intersection Control Evaluations	Routine Evaluation	Regularly evaluate high-volume intersections for proper intersection treatments (signalization, roundabout installation, optimized timing, crossing enhancements, etc.)
SR 828 Adoption	Evaluation	City should consider adopting SR 828 from the Nevada Department of Transportation (NDOT) in the case that a multimodal facility along Desert Shadows Lane proves infeasible
Travel Analysis Tool	Routine Evaluation	Maintain and update the City's travel analysis tool housed within Synchro 10 Traffic Simulation Software annually
Modeling Evaluation	Partnership	Continue to evaluate incorporating City of Fernley data into the RTC Washoe travel demand model (TDM) and/or pursue a northern Nevada Regional TDM
Roadway Functional Classification	Policy	Update the City roadway functional classifications to reflect the classification definitions and categories as found in the FHWA procedures and used by both NDOT and FHWA and coordinate future modifications with NDOT. The functional classification map should also be updated in the 2018 Comprehensive Master Plan (CMP).
Data Collection/ Development	Data Management	The following data should be considered for collection/development to aid in making strategic decisions in the future regarding the transportation network and infrastructure in the city: - Active transportation facilities (pedestrian and bicycle) - Transit facilities and ridership (when a transit system is initiated) - Intersection operations - Sidewalk inventory - Annual traffic counts - Socio-economic data including population and employment - Communications network/Intelligent Transportation Systems (ITS) related infrastructure - Pedestrian facility use data (when and where traffic counts are required per City of Fernley design standards for proposed developments)

Table 14 – Other Strategies (continued)

Project Name	Improvement Type	Project Description
Bicycle/ Pedestrian Plan	Study/Plan	Establish and adopt a plan to identify, evaluate, and prioritize bicycle and pedestrian facilities as well as inspect existing facility condition.
Micromobility Policy	Policy	Modify ordinance and policy to accommodate these devices based on best practices on and off sidewalks.



CHAPTER 7 – FUNDING STRATEGIES

The implementation of the projects recommended in this TMP is contingent on the availability of funding for design and construction of the transportation improvement projects. This chapter summarizes current and potential future funding sources for transportation improvements and maintenance projects. A comprehensive review of funding strategies and references are provided in **Appendix M**.

7.1 Existing Funding Sources

A review of the City of Fernley FY 2019 – 2020 Budget indicates that revenue sources for transportation projects include:

- City General Fund
- City Capital Fund
- Other Funding

7.2 Additional Funding Options

In addition to the existing funding sources, there are two other applicable financing options authorized by Nevada statutes to fund transportation improvements and road maintenance in local jurisdictions:

- Special Assessment Districts (SAD)
- Impact Fees

7.3 Federal Funding Programs for Transportation Improvements

Federal funds for transportation are collected nationally and allocated back to the states through a series of formulas and grants under the existing transportation legislation. Generally, federal funding programs require a state or local match of funds toward the cost of a project. The following programs are available to the City of Fernley:

- Highway Safety Improvement Program (HSIP)



- Transportation Alternatives Program (TAP)
- Federal Lands Access Program (FLAP)
- Surface Transportation Block Grant Program
- USDOT BUILD Grant Program

7.4 MPOs and other Partnerships

An MPO is required to represent localities in all urbanized areas with population over 50,000 as determined by the U.S. Census. An MPO is the policy board of an organization created and designated to carry out the metropolitan transportation planning process. MPOs are designated by agreement between the governor and local governments that together represent at least 75 percent of the affected population or in accordance with procedures established by applicable state or local law. Another funding strategy would be to partner with an existing MPO

- Partner with Existing MPOs
 - RTC Washoe
 - CAMPO
- Create a New MPO

7.5 Transit Funding and Implementation

Rural and small urbanized areas with populations less than 50,000, such as the City of Fernley, work with the NDOT, which receives FTA grant funding and administers it to qualified grant subrecipients. The NDOT Multimodal Planning Division Transit Office (referred here as the NDOT Transit Office) administers the following FTA programs:

- Section 5310 – Enhanced Mobility of Seniors and Individuals with Disabilities Program
- Section 5311 – Rural Area Program
- Section 5339 – Bus and Bus Facility Program

To implement a transit system the following steps are recommended:

- Market Research and Public Outreach
- Identifying Types and Costs of Service to Best Fit Needs
- Detailed implementation Plan
- Policies for Compliance, Training, and Reporting Requirements

Implementation of a transit system within the City of Fernley should review the establishment and operations of the JAC (Jump Around Carson), as a local case study that exemplifies the creation and implementation of a relatively new transit system (established 2005).

7.5.1 Current Transit Service

Current transit service in the area is a paratransit/ADA service providing deviated fixed route and medical transportation operated by Lyon County Human Services. The service schedules trips from the Fernley Senior Center to the Northern Nevada Medical Center three days per week (Monday, Wednesday, and Friday). A minimum 48-hour notice is required to schedule a pick-up appointment. This transit service is funded by:

- FTA administered through NDOT;

- Nevada Department of Health and Human Services, Aging and Disability Services Division;
- Lyon County (through grant requests to the FTA through NDOT); and
- farebox revenue.

7.5.2 Other Transit

Other transit systems or services in the area include:

- My Ride to Work – a private company providing bus/shuttle service to/from the Tahoe Reno Industrial Center
- RTC Washoe VANPOOL program, providing vanpooling opportunities that originate or terminate within Washoe County

NDOT completed a Transit Plan of the five northern Nevada counties including a focus on the Tahoe Reno Industrial Center, entitled the *Inter-County and Regional Transit Plan* which included recommendations for the employers of the Tahoe Reno Industrial Center to form a Transportation Management Association to coordinate transit to/from the industrial center.

7.6 Funding Recommendations

Based on the information gathered and discussed in **Appendix M**, the following recommendations are made for acquiring additional funding associated with future developments and regional funds available for roadway construction and improvements.

7.6.1 Funding for Future Developments

Impact fees for new developments are recommended to help finance the costs associated with capital improvement needs. A separate study or analysis should be completed (following all procedural requirements as stipulated by NRS) prior to implementing impact fees. More information on impact fees and requirements is contained in NRS 278B – *Impact Fees for New Development*.⁶

7.6.2 Funding for Road Construction and Improvements

Funding recommendations for road construction and other types of road improvements are:

- **Road construction** – Data, such as that included in this TMP, are recommended to justify proposed road construction projects and the following funding avenues are recommended:
 - SADs can fund street construction, paving, installing curb and gutter, sidewalks, drainage improvements and other improvements.
 - Road construction projects on rural minor collector roads can be funded through the STGB Program, although this funding is limited and competitive.
- **Safety improvements** – HSIP funds, administered by NDOT, fund road improvements such as slope flattening/shoulder widening, flashing yellow arrows, rumble strips, and turn pockets with acceleration/deceleration lanes. These funds are administered competitively and require a data-driven justification, typically through a Road Safety Assessment or engineering analysis.

⁶ Nevada Revised Statute, NRS 278 B – Impact Fees for New Development, <https://www.leg.state.nv.us/NRS/NRS-278B.html>, referenced May 15, 2020.

- **Transportation alternatives projects** – Projects such as pedestrian and bicycle facilities, SRTS projects, streetscape improvements, and other community improvement projects can be funded through the TAP, administered by NDOT. Funds are awarded on a competitive basis and projects should be supported by data-driven needs.

7.6.3 Other Recommendations

The City of Fernley should consider petitioning to join an MPO, either RTC Washoe or CAMPO. There are a number of advantages, discussed in this document, including consideration for project funding, technical assistance, participation in regional planning initiatives, and having a voice in regional planning.



CHAPTER 8 – MOVING FORWARD

The TMP identified transportation improvements and strategies through consideration of:

- Review of existing studies and available data
- Assessment of needs
- Evaluation of streets, future transportation trends, and varying analysis scenarios
- Input from City staff, TAC members, and the public

This chapter discusses how the TMP can be implemented to move forward and best serve the residents and visitors to City of Fernley.

8.1 Implementation Plan

The recommendations and strategies presented in this TMP will require actions by City staff, partner stakeholders, and residents.

The Fernley City Council, Planning Commission, Department of Community Development, and public comments each inform project prioritization. The project recommendations should be regularly reviewed as projects are completed and other issues arise that need attention.

Partnering is vital to implement several of the recommended transportation improvements. Lead agencies or stakeholders have been identified for the recommend transportation improvements. Coordination for many of the recommended improvements and strategies may take long periods of time and should begin as soon as possible. Potential partnering agencies may include NDOT, RTC Washoe, surrounding municipalities, private partnerships (transit/micromobility providers, TRIC, etc.), and UPRR.

8.2 Funding Strategies and Options Summary

The implementation of the improvements and strategies recommended in the TMP is contingent on the availability of funding for design and construction of the transportation improvement projects. Current and potential future funding sources were researched and evaluated for transportation improvements and maintenance projects including:



- Existing funding sources
- Nevada funding options
- Federal funding programs for transportation improvements
- MPOs and other partnerships
- Transit funding and implementation
- Funding recommendations

The completed analysis and review of funding strategies and options can be found in **Appendix M**.

8.3 Next Steps

The City of Fernley TMP should be reviewed at minimum annually by City staff. Recommended improvements and strategies should be tracked as completed or as reassigned to different horizon years. It is recommended that the TMP be updated every five years to reflect changes in land use and multimodal traffic volumes. As new opportunities, issues, and public comment arise, recommendations may be changed to accommodate the needs of the City of Fernley and its residents and visitors.

APPENDIX A

LITERATURE REVIEW

Fernley Specific Literature

Community Assessment for the City of Fernley, Nevada (2019)

A comprehensive community assessment for the city was completed in 2019 by faculty from the University of Nevada, Reno. The assessment includes a report summarizing the findings from several stakeholder and community meetings, a community survey, and general socio-demographic and economic data. The assessment highlights strengths, assets, needs, and challenges, in addition to the overall status of a community. The assessment identified one primary and unifying central theme, growth.

Six growth-related sub-themes were identified:

- Economic development
- Infrastructure
- Youth, families and seniors
- Communication and engagement
- Public facilities and services
- At-risk and at-need populations

As part of the Assessment, City residents provided feedback specific to transportation and infrastructure. Residents were asked, “What are the major challenges or problems in Fernley?” Over 340 responses were submitted. The top responses included the following key words:

- “Lack of...” (such as retail, recreation, restaurants, entertainment, healthcare etc.)
- “traffic”
- “roads”

Specific traffic issues perceived by residents included:

- The intersection of Nevada Pacific Parkway and US 50A
- The extension of Nevada Pacific Parkway to US 50A
- Farm District Road being overcapacity
- Circulation issues along Main Street
- Concerns about high volume roads such as US 95A and their proximity to schools

Residents were also asked, “What are the major assets or strengths in Fernley?”. Over 330 responses were collected, and the top responses included the following key words:

- “community”
- “town”
- “small”

These responses indicate the strong sense of community, tradition, and small-town identity that exists in Fernley. Fernley’s geographic and central location was considered another major asset and strength by a number of respondents.

“What projects or initiatives would you like to see completed in the short term (24 months) or the long term (5,10, or 50 years from now) in Fernley?” Top responses to this question included the following key words:

- “town” (multiple comments regarding keeping a small town feel to Fernley)
- “roads”
- “community”
- “water”
- “traffic”

A review of survey responses identifies a focus on projects and initiatives designed to respond to and/or mitigate current levels of growth and future levels of growth anticipated for the community.

The survey informs the City how existing transportation conditions are viewed by residents, and where they perceive improvements can be made. Suggestions of priority projects and initiatives varied from improving the City’s existing infrastructure to a need for new infrastructure, and additional programs to service target demographic groups such as youth, families, and seniors.

City of Fernley Comprehensive Master Plan (2018)

The Comprehensive Master Plan established a clear direction for future growth and development of the City. Trends, issues, goals, and action strategies are provided in sections supporting the areas of population, housing and employment, conservation, land use, transportation, and public facilities and services. The plan provides a framework for balancing growth with available resources given the changes in the region and in Fernley. Specific future and improved roadway facilities listed in the plan include:

- North Industrial Connector – Connect Main Street (north of I-80) to Nevada Pacific Parkway Interchange
- Nevada Pacific Parkway Extension – Extend Nevada Pacific Parkway south across the Union Pacific Railroad (UPRR) to US 50A
- South Residential Connector – Connect US 50A (east of St. Louis Road) to US 95A in southwest direction; extend Shadow Lane southeast to US 95A
- Wadsworth Interchange connector – Connect south Fernley to Wadsworth interchange
- Future Exit 52 – Connect US 50A (east of downtown) to commercial core of I-80
- Widen the railroad underpass on SR 427 entering west Fernley to increase vehicle capacity

Several bicycle and pedestrian enhancements to existing roads, as well as new infrastructure, is recommended in the plan. Specific improvements (many of which have been taken from the 1999 Bicycle Master Plan, 2013 Nevada Statewide Bicycle Plan, and 2016 Lyon County Bicycle Plan) include:

- Improve SR 427 to provide a bicycle facility to connect Fernley to Wadsworth
- Provide a bicycle facility along Farm District Road
- Widen the railroad underpass on SR 427 entering west Fernley to remove a pinch point for pedestrians and bicycles
- Improve Main Street (US 50A/US 95A) to better accommodate bicycle and pedestrian use
- Widen shoulders between Silver Springs and Fernley
- Implement the City of Fernley Safe Routes to School Plan
- Provide trail system, specifically along the Truckee Canal

Downtown Fernley Revitalization Planning and Phase 2 Studies (2014)

The Downtown Fernley Revitalization Project evaluated potential streetscape, transportation, and urban design improvements to Main Street and US 95A as well as developed an overall design framework and guidelines for the downtown study area. Preferred alternative roadway configurations were chosen for different segments of downtown roadways. The preferred roadway alternative for the Downtown Corridor generally maintains the existing lane configurations and utilizes the existing right-of-way to provide bicycle facilities, sidewalks, landscaped medians, and park strips. Common elements of the preferred alternatives include thematic street lighting and banners, landscape, and hardscape improvements where possible to increase vitality for businesses and residents along the corridor. The plan proposes implementation strategies and preliminary cost estimates for short-, mid-, and long-term improvements.

In Phase 2 of the study, the preferred alternative was advanced from preliminary design to an approximate 90% design plan set.

City of Fernley Safe Routes to School Plan (2011)

The City of Fernley developed a Safe Routes to School (SRTS) Plan to assess the safety of children walking to and from schools in Fernley. The Safe Routes to School Plan identified short-term and long-term action items to improve active transportation as well as potential funding sources for proposed improvements. The short-term action items included:

- Determine specific engineering solutions to reduce traffic speed and raise student crossing safety on Hardie Lane and Cottonwood Lane
- Map existing sidewalks and walking paths to determine gaps in paths, and unsafe or inadequate paths that need improvement to ensure connectivity of paths and safe road crossings for students within the 1-mile walk radius
- Create traffic control plans for each school site; integrate the role of crossing guards in the traffic control plans and include formal training of crossing guards in the plan
- Determine the baseline conditions of active transportation at each school; update the report yearly to show progress
- Form a coalition of agencies that will be involved in the SRTS plan implementation (City of Fernley, Lyon County School District, Lyon County Sheriff, etc.)
- Ensure during repave projects that sidewalk, curb and gutter, and any SRTS design is also routinely replaced

The long-term action items included:

- Require new developments to provide a SRTS Plan and potentially amenities, walking paths, trails and other bicycle and pedestrian features to school sites
- Increase communication with Lyon County School District to coordinate on-site and off-site infrastructure improvements that meet SRTS plan specifications
- Determine areas of greatest risk to pedestrians and bicycles and consider traffic calming measures in these areas
- Apply consistency in responsibility for maintenance of paths
- Engage students in SRTS planning and implementation

Funding source options include federal, state, local, and private-sector sources.

City of Fernley Bicycle Master Plan (1999)

The Bicycle Master Plan includes six goals and actions for each goal to improve bicycle connectivity throughout the City. The plan was created in 1997 and updated in 1999. The six goals are:

- Set standards for development such that the orderly construction of new bicycle facilities occurs
- Improve Nevada Department of Transportation (NDOT) Bicycle Corridor Routes through the city
- Improve local connector roadways in the Fernley area to allow for safer and more convenient bicycle use
- Improve the aesthetics and multi-modal transportation functions of the downtown area
- Provide bicycle facilities which serve an additional function of allowing for emergency access where appropriate
- Provide bicycle instruction for children on the fundamentals of bicycle safety

City of Fernley ADA Survey and Inventory Report (2019)

The City of Fernley conducted ADA surveys in the 2018-2019 fiscal year and compiled a final ADA Survey and Inventory Report to assist with the development of the City's ADA Transition Plan. The ADA Transition Plan is scheduled to be completed in the 2020-2021 fiscal year. The ADA Survey and Inventory Report included a self-evaluation of City-maintained facilities including open space areas, parks, pedestrian access ramps, sidewalks, and multi-use paths. The intent of the survey is to identify the existing of ADA compliance conditions and provide costs associated with increasing compliance where needed.

The estimated cost to correct ADA issues in the City's 11 facilities, 10 open spaces, and the Farm District Road Multi-Use Path is \$237,000. This cost does not include the major construction and/or structural renovation that is needed at both the Chamber of Commerce and The Desert Memorial Garden Facility. The estimated cost to bring the 13 parks into ADA compliance is \$1,493,077. The cost to improve the 802 non-compliant (out of 1,283 total) pedestrian ramps at \$8,000 per, is \$6.42 million.

Regional or Statewide Literature

One Nevada Transportation Plan (2018)

The statewide transportation plan provides guidance to NDOT and its partners for planning, developing, operating, and maintaining Nevada's multimodal transportation system for the next 20 years. The plan is intended to be common foundation and shared policy framework for making more informed, transparent, and responsive transportation investment decisions. The goals of this plan include:

- Enhancing safety
- Persevering infrastructure
- Optimizing mobility
- Transforming economies
- Fostering sustainability

- Connecting communities

In this plan, US 50 and US 95 are identified as critical corridors due to their role as primary freight and resident transportation arteries of the State.

Lyon County Bicycle Plan (2016)

The Lyon County Bicycle Plan was prepared in support of the NDOT State Bicycle Plan and focuses on documenting existing and proposed infrastructure improvements desired within Lyon County. Several bicycle facility types along with high priority bicycle improvements were recommended.

US 50A is identified as a Prioritized Corridor per the National Corridor Plan. High priority bicycle improvements listed in the plan relevant to Fernley include:

- Install a bicycle lane along Main Street (US 50A) in Fernley
- Add a bicycle lane on US 95A from Main Street to Royal Oaks Drive
- Install bicycle wayfinding signage along US 50 throughout the entire county
- Install a paved shoulder along US 50 throughout the entire county

Recommended strategies were developed to support four main objectives of the plan. The objectives and some of the recommended strategies for each include:

- Increase local support of bicycling
 - Recommended strategies to support this objective included improving connectivity of bicycle facilities, providing technical support to local jurisdictions, collaboration between agencies, and establishing a bicycle advisory committee
- Increase bicycle tourism
 - Recommended strategies to support this objective included economic development collaboration between agencies, development of bicycle tourism materials, development of bicycling maps or other destinations, and developing a signage scheme
- Accommodate appropriate bicycling facilities on all roadways in Nevada open to bicycling
 - Recommended strategies to support this objective included adopting county-wide design guidelines and specifications for bicycle facility design, developing maintenance protocols to evaluate redesign options, establishing a list of high priority bicycle improvement projects, and strengthening requirements for developers to provide bicycle facilities
- Increase motorists' and bicyclists' compliance with laws associated with bicycling
 - Recommended strategies to support this objective included providing bicycle training for all riders through strategic partnerships, providing state and local media and safety campaigns and materials, encouraging enforcement of state laws related to bicycling, and continued work with advocates to address legislative issues

Nevada Statewide Bicycle Plan (2013)

This Statewide Bicycle Plan focuses on infrastructure and connectivity needs for rural areas outside of metropolitan planning organization (MPO) areas in Nevada, including Fernley. The current MPO boundaries include the Las Vegas Valley in Southern Nevada, the Carson City Area, and the Reno-Sparks Metropolitan Area (within Washoe County). Strategies to achieve objectives

are similar to those listed previously for the Lyon County Bicycle Plan. An implementation plan is included which reviews potential funding sources including federal, state, and local options, along with an implementation matrix for short-, mid-, and long-term improvements. The plan includes design guidance from NDOT, the Manual on Uniform Traffic Control Devices (MUTCD), and the American Association of State Highway and Transportation Officials (AASHTO), for accommodating bicycles on state highways and rural communities.

From the public meetings, it was noted that a bicycle facility to connect Fernley to Wadsworth was a key infrastructure need/issue. Also, Fernley's Safe Routes to School Plan, SR 828 (Farm District Road) multi-use path, and US 95 multi-use path are listed as major bikeway initiatives.

Included in the list of regionally significant bicycle improvement projects for NDOT are widening the shoulder on US 50 from Fernley to Silver Springs and improving SR 427 from Fernley to Wadsworth.

NDOT Inter-County and Regional Transit Plan (ongoing)

Increased development activity and employment in Northern Nevada prompted NDOT along with local partners to develop a plan to address inter-county transit commuting needs within the five-county region of Washoe, Storey, Carson City, Lyon, and Churchill counties. Documentation of the process and findings of this plan – the Inter-County and Regional Transit Plan – is currently under development. Initial findings have documented the potential for inter-county transit in the near future, including transit potentially connecting Lyon County and Washoe County. The plan also includes a recommendation to create a Transportation Management Association at the Tahoe Reno Industrial Center which could coordinate transit to/from the industrial center to surrounding areas including Fernley. Future phases of the Inter-County and Regional Transit Plan may produce more concrete recommendations.

APPENDIX B

TRAFFIC COUNT DATA

Silver State Traffic Data Collection, LLC

1819 Quarley Place
Henderson, Nevada 89014
702-898-1968 - Office
702-217-1968 - Cell
sstraffic@msn.com

File Name : Main St.-US 95 A
Site Code : 00000000
Start Date : 7/16/2019
Page No : 1

Groups Printed- Class 1

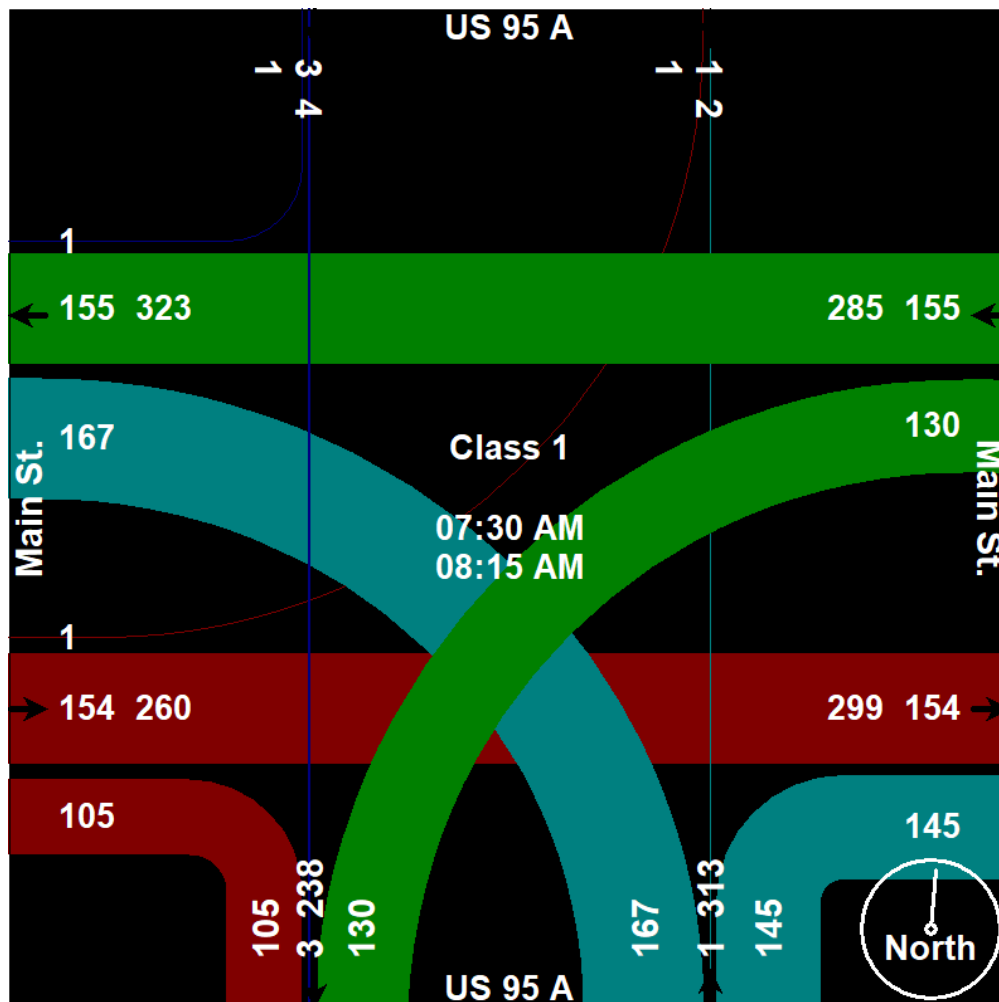
	US 95 A Southbound				Main St. Westbound				US 95 A Northbound				Main St. Eastbound				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
07:00 AM	0	0	0	0	1	47	23	0	15	1	58	0	17	29	0	0	191
07:15 AM	0	0	0	0	1	31	33	0	19	0	61	0	22	30	0	0	197
07:30 AM	0	0	0	0	0	44	37	0	33	0	57	0	28	30	0	0	229
07:45 AM	1	3	0	0	0	42	31	0	37	1	36	0	24	40	0	0	215
Total	1	3	0	0	2	164	124	0	104	2	212	0	91	129	0	0	832
08:00 AM	0	0	0	0	0	35	36	0	40	0	40	0	27	36	1	0	215
08:15 AM	0	0	0	0	0	34	26	0	35	0	34	0	26	48	0	0	203
08:30 AM	0	0	0	0	0	36	24	0	38	0	27	0	26	48	0	0	199
08:45 AM	1	1	0	0	0	48	43	0	36	0	35	0	24	37	0	0	225
Total	1	1	0	0	0	153	129	0	149	0	136	0	103	169	1	0	842
*** BREAK ***																	
04:00 PM	0	3	4	0	1	55	45	0	35	0	41	0	40	70	0	0	294
04:15 PM	0	0	0	0	0	42	50	0	39	0	27	0	38	76	0	0	272
04:30 PM	0	1	0	0	1	47	45	0	39	2	34	0	48	85	0	0	302
04:45 PM	0	0	3	0	2	51	61	0	31	0	24	0	50	77	0	0	299
Total	0	4	7	0	4	195	201	0	144	2	126	0	176	308	0	0	1167
05:00 PM	0	2	4	0	1	60	49	0	42	1	35	0	44	89	0	0	327
05:15 PM	0	0	2	0	0	50	54	0	33	1	27	0	49	82	0	0	298
05:30 PM	0	1	0	0	0	54	35	0	30	0	33	0	38	72	0	0	263
05:45 PM	0	1	1	0	0	53	44	0	38	2	27	0	55	68	0	0	289
Total	0	4	7	0	1	217	182	0	143	4	122	0	186	311	0	0	1177
Grand Total	2	12	14	0	7	729	636	0	540	8	596	0	556	917	1	0	4018
Apprch %	7.1	42.9	50	0	0.5	53.1	46.4	0	47.2	0.7	52.1	0	37.7	62.2	0.1	0	
Total %	0	0.3	0.3	0	0.2	18.1	15.8	0	13.4	0.2	14.8	0	13.8	22.8	0	0	

Silver State Traffic Data Collection, LLC

1819 Quarley Place
Henderson, Nevada 89014
702-898-1968 - Office
702-217-1968 - Cell
sstraffic@msn.com

File Name : Main St.-US 95 A
Site Code : 00000000
Start Date : 7/16/2019
Page No : 2

	US 95 A Southbound					Main St. Westbound					US 95 A Northbound					Main St. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	44	37	0	81	33	0	57	0	90	28	30	0	0	58	229
07:45 AM	1	3	0	0	4	0	42	31	0	73	37	1	36	0	74	24	40	0	0	64	215
08:00 AM	0	0	0	0	0	0	35	36	0	71	40	0	40	0	80	27	36	1	0	64	215
08:15 AM	0	0	0	0	0	0	34	26	0	60	35	0	34	0	69	26	48	0	0	74	203
Total Volume	1	3	0	0	4	0	155	130	0	285	145	1	167	0	313	105	154	1	0	260	862
% App. Total	25	75	0	0		0	54.4	45.6	0		46.3	0.3	53.4	0		40.4	59.2	0.4	0		
PHF	.250	.250	.000	.000	.250	.000	.881	.878	.000	.880	.906	.250	.732	.000	.869	.938	.802	.250	.000	.878	.941

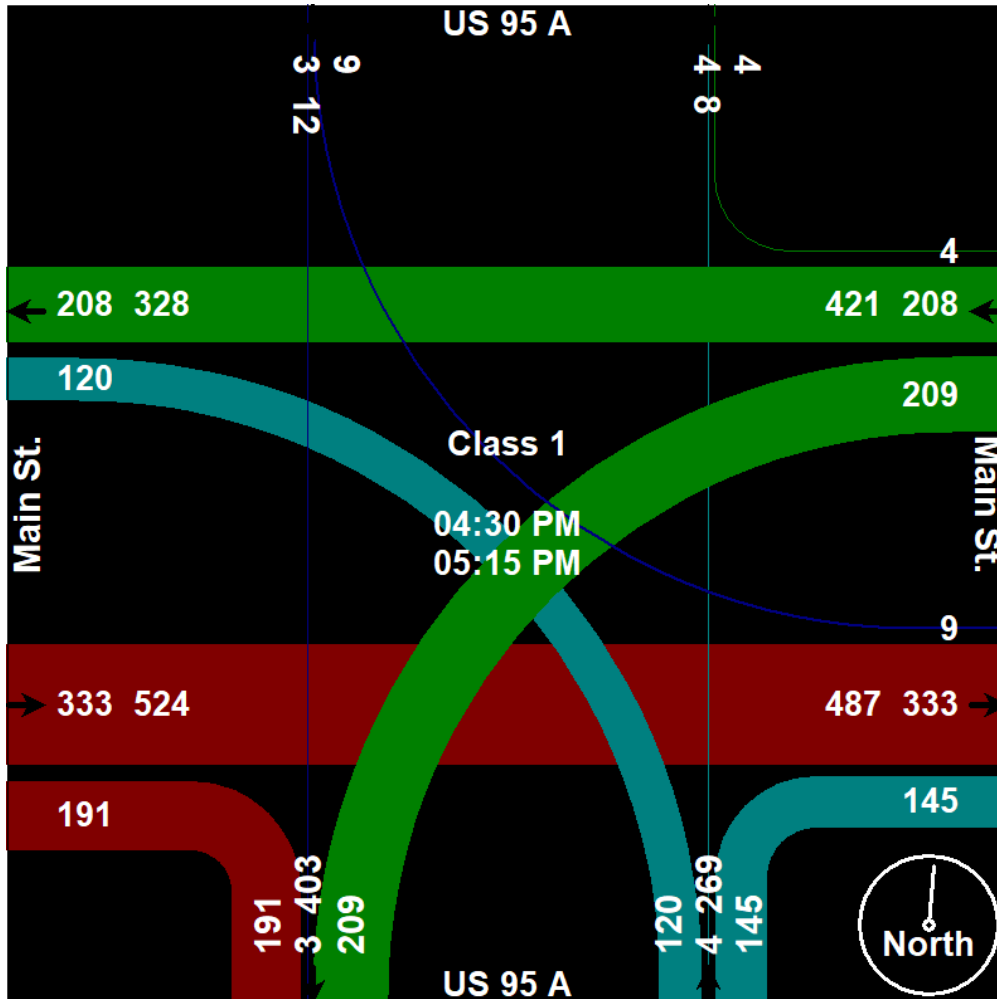


Silver State Traffic Data Collection, LLC

1819 Quarley Place
Henderson, Nevada 89014
702-898-1968 - Office
702-217-1968 - Cell
sstraffic@msn.com

File Name : Main St.-US 95 A
Site Code : 00000000
Start Date : 7/16/2019
Page No : 3

	US 95 A Southbound					Main St. Westbound					US 95 A Northbound					Main St. Eastbound					
Start Time	Rig ht	Thr u	Left	Ped s	App. Total	Rig ht	Thr u	Left	Ped s	App. Total	Right	Thr u	Left	Peds	App. Total	Right	Thr u	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	1	0	0	1	1	47	45	0	93	39	2	34	0	75	48	85	0	0	133	302
04:45 PM	0	0	3	0	3	2	51	61	0	114	31	0	24	0	55	50	77	0	0	127	299
05:00 PM	0	2	4	0	6	1	60	49	0	110	42	1	35	0	78	44	89	0	0	133	327
05:15 PM	0	0	2	0	2	0	50	54	0	104	33	1	27	0	61	49	82	0	0	131	298
Total Volume	0	3	9	0	12	4	208	209	0	421	145	4	120	0	269	191	333	0	0	524	1226
% App. Total	0	25	75	0		1	49.4	49.6	0		53.9	1.5	44.6	0		36.5	63.5	0	0		
PHF	.000	.375	.563	.000	.500	.500	.867	.857	.000	.923	.863	.500	.857	.000	.862	.955	.935	.000	.000	.985	.937



Silver State Traffic Data Collection, LLC

1819 Quarley Place
Henderson, Nevada 89014
702-898-1968 - Office
702-217-1968 - Cell
sstraffic@msn.com

File Name : roundabout at main street and farm district road

Site Code : 00000000

Start Date : 7/16/2019

Page No : 1

Groups Printed- Unshifted

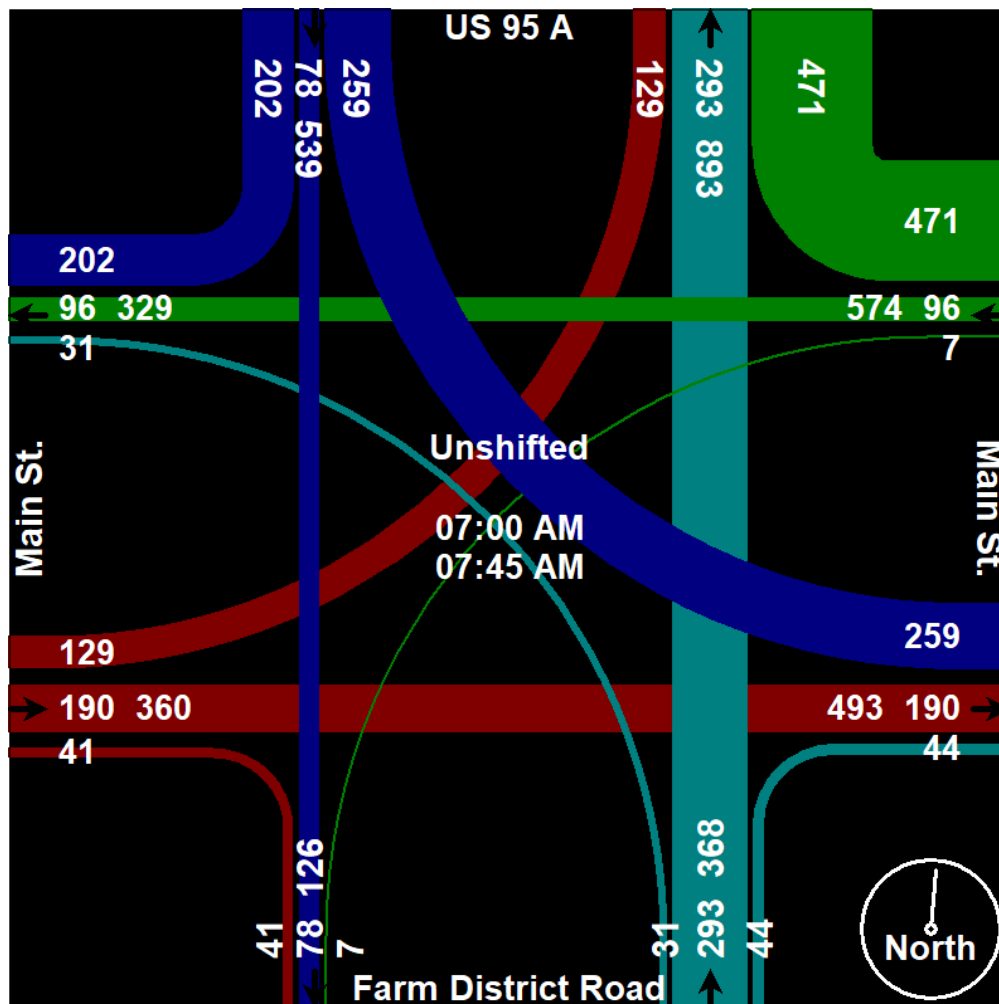
	US 95 A Southbound				Main St. Westbound				Farm District Road Northbound				Main St. Eastbound				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
07:00 AM	45	21	77	0	125	12	1	0	12	66	3	0	10	26	27	0	425
07:15 AM	54	16	60	0	118	21	1	0	12	76	5	0	10	29	32	0	434
07:30 AM	51	19	52	0	119	24	5	0	15	85	11	0	9	65	24	0	479
07:45 AM	52	22	70	0	109	39	0	0	5	66	12	0	12	70	46	0	503
Total	202	78	259	0	471	96	7	0	44	293	31	0	41	190	129	0	1841
08:00 AM	48	18	65	0	90	28	0	0	9	62	15	0	4	44	36	0	419
08:15 AM	63	20	43	0	81	23	3	0	6	64	16	0	15	48	36	0	418
08:30 AM	73	19	43	0	125	18	1	0	15	45	8	0	19	63	36	0	465
08:45 AM	72	4	62	0	104	24	0	0	11	49	5	0	14	71	37	0	453
Total	256	61	213	0	400	93	4	0	41	220	44	0	52	226	145	0	1755
*** BREAK ***																	
04:00 PM	98	67	106	0	98	17	2	0	12	67	8	0	33	97	44	0	649
04:15 PM	81	77	132	0	111	23	1	0	11	65	8	0	36	85	63	0	693
04:30 PM	107	101	155	0	100	19	2	0	11	44	6	0	68	75	55	0	743
04:45 PM	111	99	174	0	99	26	2	0	16	46	11	0	55	90	46	0	775
Total	397	344	567	0	408	85	7	0	50	222	33	0	192	347	208	0	2860
05:00 PM	105	90	176	0	108	15	2	0	7	45	5	0	66	75	59	0	753
05:15 PM	81	92	188	0	105	34	1	0	17	35	2	0	81	56	48	0	740
05:30 PM	101	46	168	0	119	17	1	0	17	35	4	0	57	34	51	0	650
05:45 PM	86	78	142	0	113	28	5	0	8	28	4	0	49	48	47	0	636
Total	373	306	674	0	445	94	9	0	49	143	15	0	253	213	205	0	2779
Grand Total	1228	789	1713	0	1724	368	27	0	184	878	123	0	538	976	687	0	9235
Apprch %	32.9	21.2	45.9	0	81.4	17.4	1.3	0	15.5	74.1	10.4	0	24.4	44.3	31.2	0	
Total %	13.3	8.5	18.5	0	18.7	4	0.3	0	2	9.5	1.3	0	5.8	10.6	7.4	0	

Silver State Traffic Data Collection, LLC

1819 Quarley Place
Henderson, Nevada 89014
702-898-1968 - Office
702-217-1968 - Cell
sstraffic@msn.com

File Name : roundabout at main street and farm district road
Site Code : 00000000
Start Date : 7/16/2019
Page No : 2

	US 95 A Southbound					Main St. Westbound					Farm District Road Northbound					Main St. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	45	21	77	0	143	125	12	1	0	138	12	66	3	0	81	10	26	27	0	63	425
07:15 AM	54	16	60	0	130	118	21	1	0	140	12	76	5	0	93	10	29	32	0	71	434
07:30 AM	51	19	52	0	122	119	24	5	0	148	15	85	11	0	111	9	65	24	0	98	479
07:45 AM	52	22	70	0	144	109	39	0	0	148	5	66	12	0	83	12	70	46	0	128	503
Total Volume	202	78	259	0	539	471	96	7	0	574	44	293	31	0	368	41	190	129	0	360	1841
% App. Total	37.5	14.5	48.1	0		82.1	16.7	1.2	0		12	79.6	8.4	0		11.4	52.8	35.8	0		
PHF	.935	.886	.841	.000	.936	.942	.615	.350	.000	.970	.733	.862	.646	.000	.829	.854	.679	.701	.000	.703	.915



Silver State Traffic Data Collection, LLC

1819 Quarley Place
Henderson, Nevada 89014
702-898-1968 - Office
702-217-1968 - Cell
sstraffic@msn.com

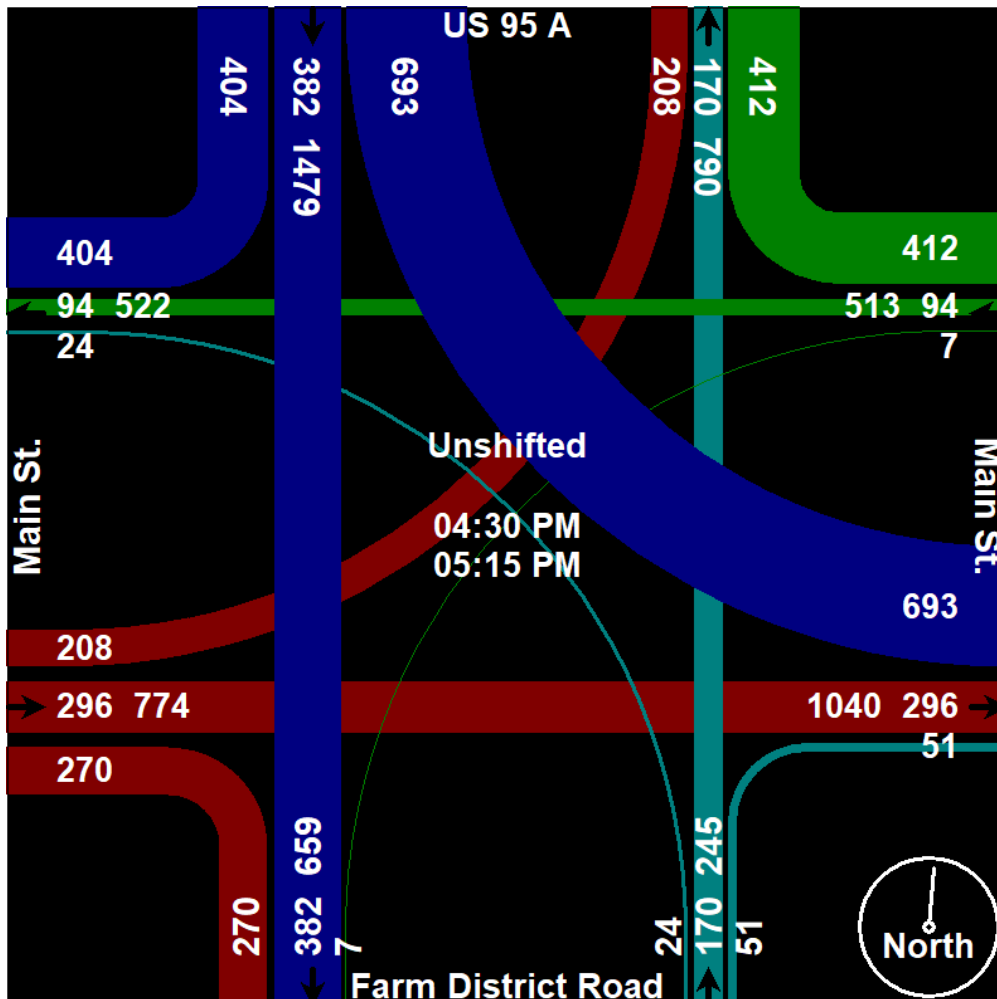
File Name : roundabout at main street and farm district road

Site Code : 00000000

Start Date : 7/16/2019

Page No : 3

	US 95 A Southbound					Main St. Westbound					Farm District Road Northbound					Main St. Eastbound					
Start Time	Rig ht	Thr u	Left	Ped s	App. Total	Rig ht	Thr u	Left	Ped s	App. Total	Right	Thr u	Left	Peds	App. Total	Right	Thr u	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	107	101	155	0	363	100	19	2	0	121	11	44	6	0	61	68	75	55	0	198	743
04:45 PM	111	99	174	0	384	99	26	2	0	127	16	46	11	0	73	55	90	46	0	191	775
05:00 PM	105	90	176	0	371	108	15	2	0	125	7	45	5	0	57	66	75	59	0	200	753
05:15 PM	81	92	188	0	361	105	34	1	0	140	17	35	2	0	54	81	56	48	0	185	740
Total Volume	404	382	693	0	1479	412	94	7	0	513	51	170	24	0	245	270	296	208	0	774	3011
% App. Total	27.3	25.8	46.9	0		80.3	18.3	1.4	0		20.8	69.4	9.8	0		34.9	38.2	26.9	0		
PHF	.910	.946	.922	.000	.963	.954	.691	.875	.000	.916	.750	.924	.545	.000	.839	.833	.822	.881	.000	.968	.971



Silver State Traffic Data Collection, LLC

1819 Quarley Place
Henderson, Nevada 89014
702-898-1968 - Office
702-217-1968 - Cell
sstraffic@msn.com

File Name : Chisholm Trail-Fremont-US 95 A
Site Code : 00000000
Start Date : 7/16/2019
Page No : 1

Groups Printed- Class 1

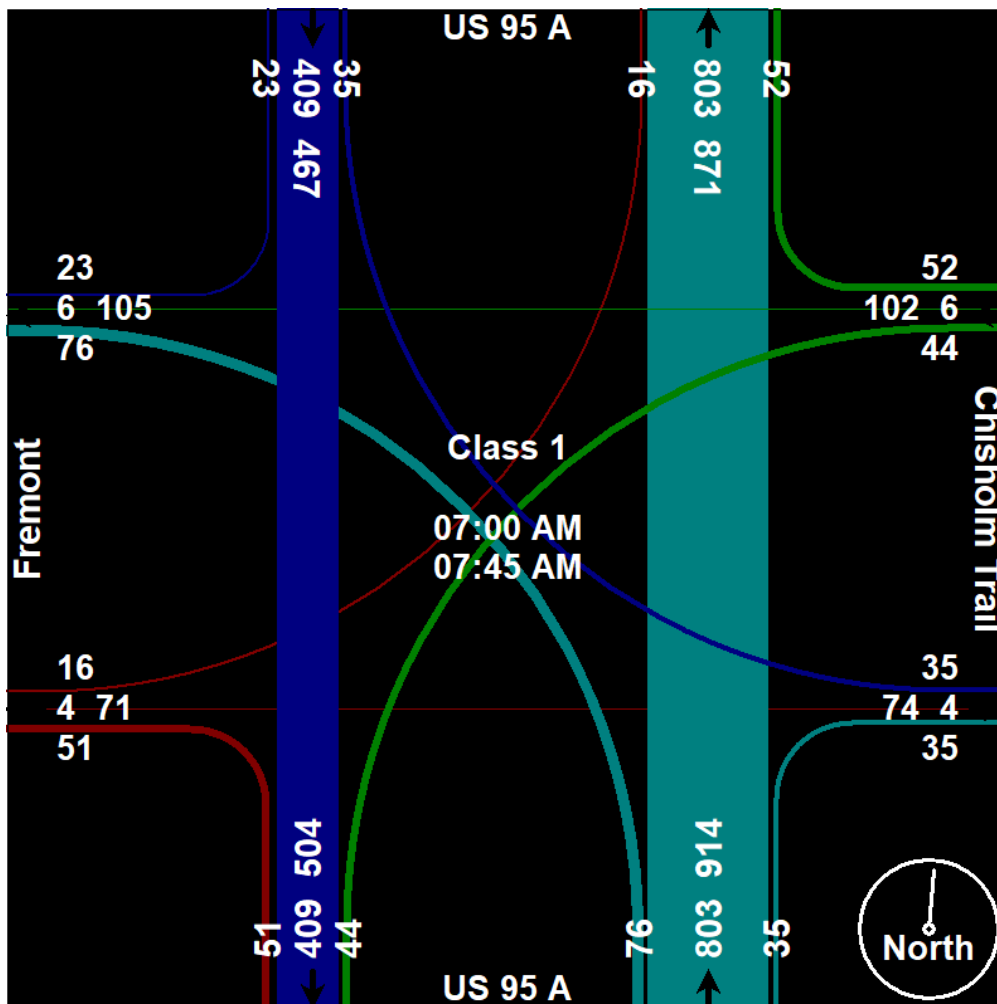
	US 95 A Southbound				Chisholm Trail Westbound				US 95 A Northbound				Fremont Eastbound				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
07:00 AM	4	106	10	0	10	2	11	0	6	209	10	0	13	1	2	0	384
07:15 AM	5	100	9	0	15	2	13	0	13	204	17	0	12	2	4	0	396
07:30 AM	8	90	8	0	12	2	10	0	10	198	16	0	16	1	3	0	374
07:45 AM	6	113	8	0	15	0	10	0	6	192	33	0	10	0	7	0	400
Total	23	409	35	0	52	6	44	0	35	803	76	0	51	4	16	0	1554
08:00 AM	4	110	12	0	11	4	7	0	9	165	23	0	14	3	4	0	366
08:15 AM	3	80	9	0	9	5	19	0	8	151	27	0	18	5	9	0	343
08:30 AM	5	103	9	0	3	2	7	0	9	176	32	0	26	2	2	0	376
08:45 AM	7	99	12	0	12	2	10	0	9	170	30	0	19	7	8	0	385
Total	19	392	42	0	35	13	43	0	35	662	112	0	77	17	23	0	1470
*** BREAK ***																	
04:00 PM	13	216	33	0	7	4	35	0	9	164	41	0	38	4	6	0	570
04:15 PM	14	239	14	0	7	6	33	0	8	184	53	0	35	6	10	0	609
04:30 PM	11	280	22	0	15	5	31	0	6	166	39	0	69	12	5	0	661
04:45 PM	6	273	20	0	9	1	38	0	13	148	35	0	61	6	6	0	616
Total	44	1008	89	0	38	16	137	0	36	662	168	0	203	28	27	0	2456
05:00 PM	12	271	24	0	13	5	35	0	10	167	49	0	55	7	10	0	658
05:15 PM	14	274	21	0	13	3	34	0	6	164	33	0	66	3	9	0	640
05:30 PM	17	230	20	0	14	10	32	0	7	177	34	0	42	7	5	0	595
05:45 PM	19	247	18	0	12	3	31	0	7	149	41	0	47	6	8	0	588
Total	62	1022	83	0	52	21	132	0	30	657	157	0	210	23	32	0	2481
Grand Total	148	2831	249	0	177	56	356	0	136	2784	513	0	541	72	98	0	7961
Apprch %	4.6	87.7	7.7	0	30.1	9.5	60.4	0	4	81.1	14.9	0	76.1	10.1	13.8	0	
Total %	1.9	35.6	3.1	0	2.2	0.7	4.5	0	1.7	35	6.4	0	6.8	0.9	1.2	0	

Silver State Traffic Data Collection, LLC

1819 Quarley Place
Henderson, Nevada 89014
702-898-1968 - Office
702-217-1968 - Cell
sstraffic@msn.com

File Name : Chisholm Trail-Fremont-US 95 A
Site Code : 00000000
Start Date : 7/16/2019
Page No : 2

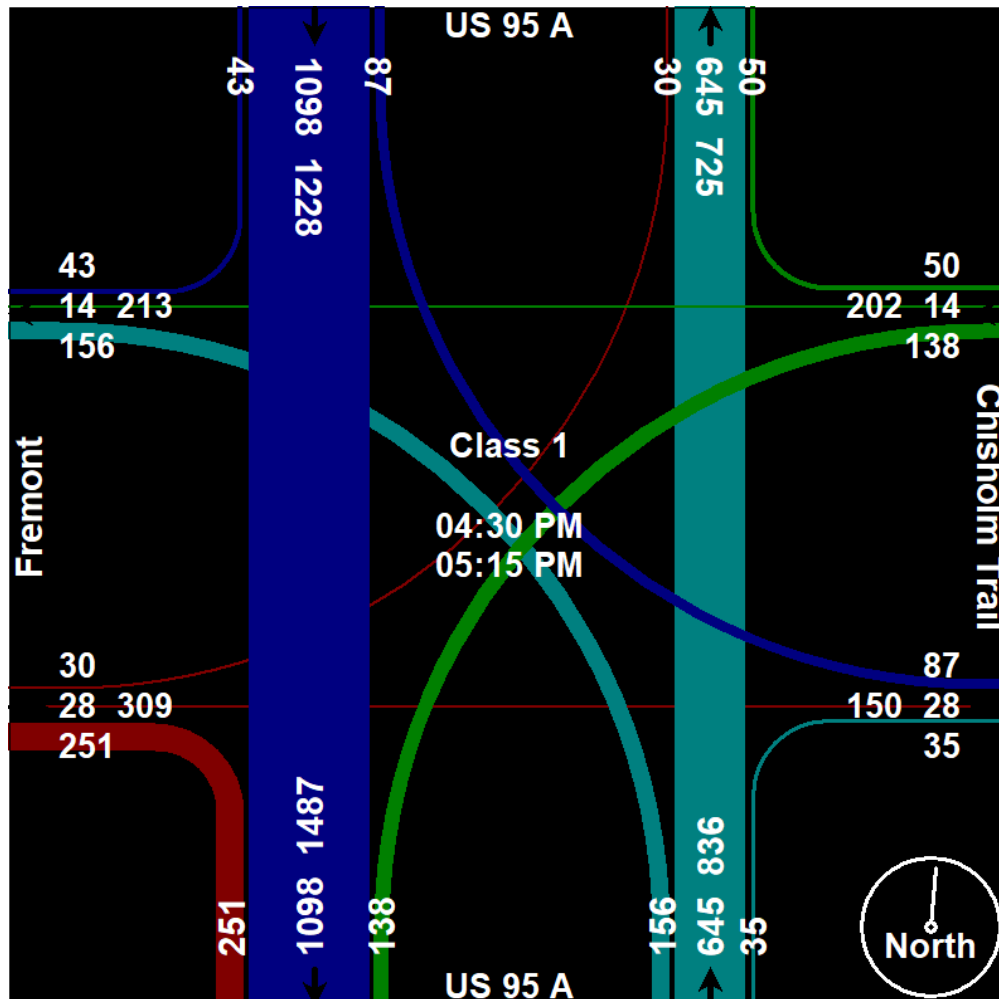
	US 95 A Southbound					Chisholm Trail Westbound					US 95 A Northbound					Fremont Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	4	106	10	0	120	10	2	11	0	23	6	209	10	0	225	13	1	2	0	16	384
07:15 AM	5	100	9	0	114	15	2	13	0	30	13	204	17	0	234	12	2	4	0	18	396
07:30 AM	8	90	8	0	106	12	2	10	0	24	10	198	16	0	224	16	1	3	0	20	374
07:45 AM	6	113	8	0	127	15	0	10	0	25	6	192	33	0	231	10	0	7	0	17	400
Total Volume	23	409	35	0	467	52	6	44	0	102	35	803	76	0	914	51	4	16	0	71	1554
% App. Total	4.9	87.6	7.5	0		51	5.9	43.1	0		3.8	87.9	8.3	0		71.8	5.6	22.5	0		
PHF	.719	.905	.875	.000	.919	.867	.750	.846	.000	.850	.673	.961	.576	.000	.976	.797	.500	.571	.000	.888	.971



1819 Quarley Place
Henderson, Nevada 89014
702-898-1968 - Office
702-217-1968 - Cell
ssstraffic@msn.com

File Name : Chisholm Trail-Fremont-US 95 A
Site Code : 00000000
Start Date : 7/16/2019
Page No : 3

	US 95 A Southbound					Chisholm Trail Westbound					US 95 A Northbound					Fremont Eastbound					
Start Time	Rig ht	Thr u	Left	Ped s	App. Total	Rig ht	Thr u	Left	Ped s	App. Total	Right	Thr u	Left	Peds	App. Total	Right	Thr u	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	11	280	22	0	313	15	5	31	0	51	6	166	39	0	211	69	12	5	0	86	661
04:45 PM	6	273	20	0	299	9	1	38	0	48	13	148	35	0	196	61	6	6	0	73	616
05:00 PM	12	271	24	0	307	13	5	35	0	53	10	167	49	0	226	55	7	10	0	72	658
05:15 PM	14	274	21	0	309	13	3	34	0	50	6	164	33	0	203	66	3	9	0	78	640
Total Volume	43	1098	87	0	1228	50	14	138	0	202	35	645	156	0	836	251	28	30	0	309	2575
% App. Total	3.5	89.4	7.1	0		24.8	6.9	68.3	0		4.2	77.2	18.7	0		81.2	9.1	9.7	0		
PHF	.768	.980	.906	.000	.981	.833	.700	.908	.000	.953	.673	.966	.796	.000	.925	.909	.583	.750	.000	.898	.974



Silver State Traffic Data Collection, LLC

1819 Quarley Place
Henderson, Nevada 89014
702-898-1968 - Office
702-217-1968 - Cell
sstraffic@msn.com

File Name : newlands-us 95 a
Site Code : 00000000
Start Date : 7/16/2019
Page No : 1

Groups Printed- Class 1

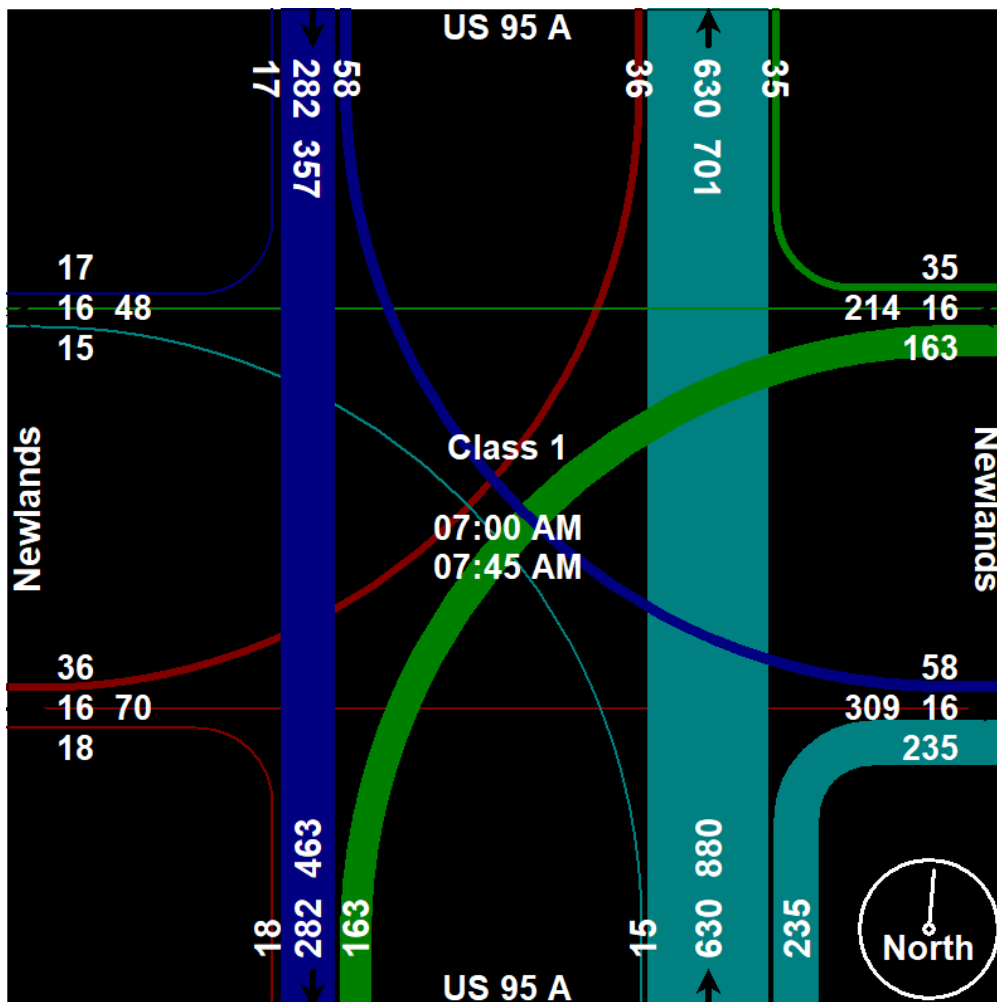
	US 95 A Southbound				Newlands Westbound				US 95 A Northbound				Newlands Eastbound				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
07:00 AM	4	72	16	0	11	3	57	0	40	190	1	0	0	3	12	0	409
07:15 AM	5	54	11	0	10	4	38	0	52	158	3	0	6	1	5	0	347
07:30 AM	4	78	19	0	8	5	34	0	67	157	4	0	6	8	13	0	403
07:45 AM	4	78	12	0	6	4	34	0	76	125	7	0	6	4	6	0	362
Total	17	282	58	0	35	16	163	0	235	630	15	0	18	16	36	0	1521
08:00 AM	4	70	19	0	7	3	44	0	47	127	5	0	6	3	11	0	346
08:15 AM	5	47	25	0	8	1	37	0	58	111	5	0	7	5	11	0	320
08:30 AM	3	70	17	0	10	4	41	0	52	114	9	0	8	8	9	0	345
08:45 AM	5	73	12	0	14	5	43	0	81	98	10	0	4	8	7	0	360
Total	17	260	73	0	39	13	165	0	238	450	29	0	25	24	38	0	1371
*** BREAK ***																	
04:00 PM	7	128	24	0	19	18	129	0	65	96	4	0	12	8	8	0	518
04:15 PM	8	155	27	0	18	7	91	0	85	105	14	0	19	9	6	0	544
04:30 PM	8	156	31	0	23	48	156	0	85	75	17	0	13	10	16	0	638
04:45 PM	13	159	39	0	28	22	115	0	55	93	9	0	11	7	14	0	565
Total	36	598	121	0	88	95	491	0	290	369	44	0	55	34	44	0	2265
05:00 PM	21	165	40	0	27	25	128	0	82	97	13	0	15	7	15	0	635
05:15 PM	11	175	21	0	25	16	108	0	60	123	18	0	11	4	10	0	582
05:30 PM	9	136	30	0	15	8	112	0	80	98	10	0	7	8	16	0	529
05:45 PM	14	166	29	0	21	9	103	0	78	70	17	0	19	7	5	0	538
Total	55	642	120	0	88	58	451	0	300	388	58	0	52	26	46	0	2284
Grand Total	125	1782	372	0	250	182	1270	0	1063	1837	146	0	150	100	164	0	7441
Apprch %	5.5	78.2	16.3	0	14.7	10.7	74.6	0	34.9	60.3	4.8	0	36.2	24.2	39.6	0	
Total %	1.7	23.9	5	0	3.4	2.4	17.1	0	14.3	24.7	2	0	2	1.3	2.2	0	

Silver State Traffic Data Collection, LLC

1819 Quarley Place
Henderson, Nevada 89014
702-898-1968 - Office
702-217-1968 - Cell
sstraffic@msn.com

File Name : newlands-us 95 a
Site Code : 00000000
Start Date : 7/16/2019
Page No : 2

	US 95 A Southbound					Newlands Westbound					US 95 A Northbound					Newlands Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	4	72	16	0	92	11	3	57	0	71	40	190	1	0	231	0	3	12	0	15	409
07:15 AM	5	54	11	0	70	10	4	38	0	52	52	158	3	0	213	6	1	5	0	12	347
07:30 AM	4	78	19	0	101	8	5	34	0	47	67	157	4	0	228	6	8	13	0	27	403
07:45 AM	4	78	12	0	94	6	4	34	0	44	76	125	7	0	208	6	4	6	0	16	362
Total Volume	17	282	58	0	357	35	16	163	0	214	235	630	15	0	880	18	16	36	0	70	1521
% App. Total	4.8	79	16.2	0		16.4	7.5	76.2	0		26.7	71.6	1.7	0		25.7	22.9	51.4	0		
PHF	.850	.904	.763	.000	.884	.795	.800	.715	.000	.754	.773	.829	.536	.000	.952	.750	.500	.692	.000	.648	.930

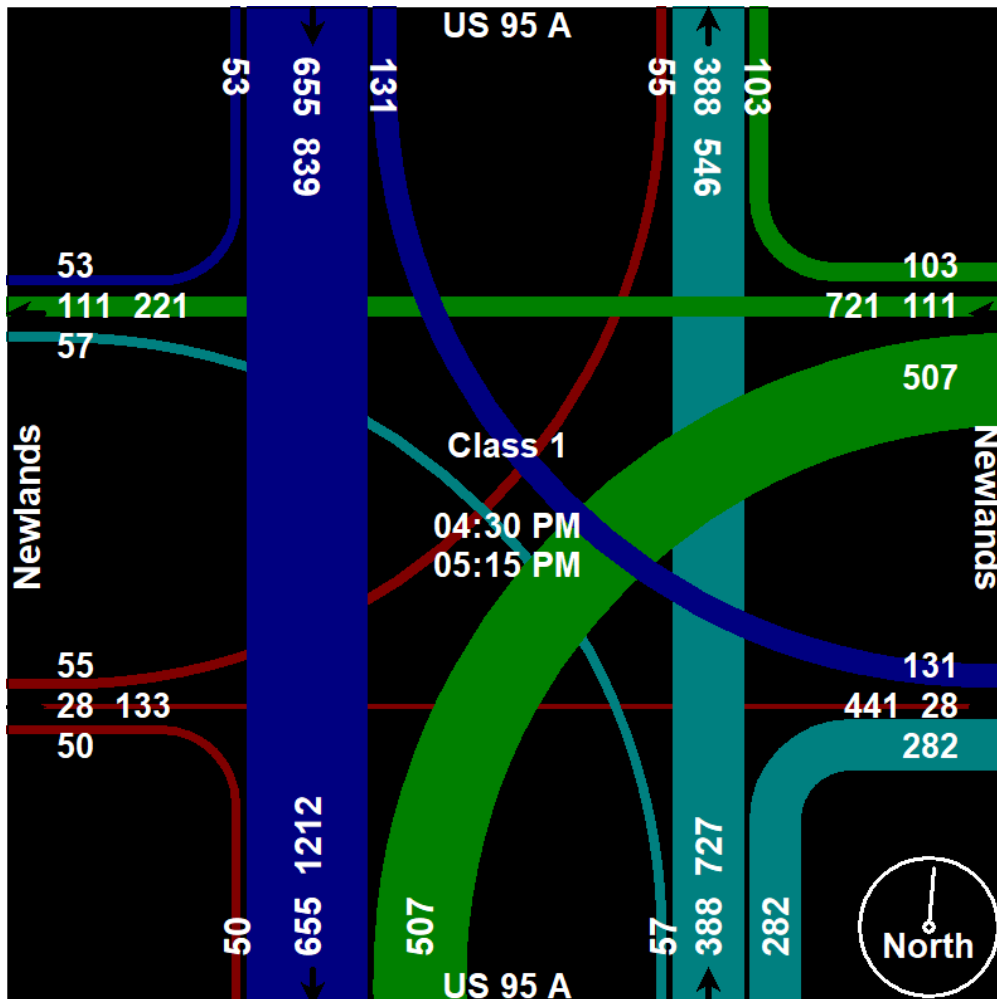


Silver State Traffic Data Collection, LLC

1819 Quarley Place
Henderson, Nevada 89014
702-898-1968 - Office
702-217-1968 - Cell
sstraffic@msn.com

File Name : newlands-us 95 a
Site Code : 00000000
Start Date : 7/16/2019
Page No : 3

	US 95 A Southbound					Newlands Westbound					US 95 A Northbound					Newlands Eastbound					
Start Time	Rig ht	Thr u	Left	Ped s	App. Total	Rig ht	Thr u	Left	Ped s	App. Total	Right	Thr u	Left	Peds	App. Total	Right	Thr u	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	8	156	31	0	195	23	48	156	0	227	85	75	17	0	177	13	10	16	0	39	638
04:45 PM	13	159	39	0	211	28	22	115	0	165	55	93	9	0	157	11	7	14	0	32	565
05:00 PM	21	165	40	0	226	27	25	128	0	180	82	97	13	0	192	15	7	15	0	37	635
05:15 PM	11	175	21	0	207	25	16	108	0	149	60	123	18	0	201	11	4	10	0	25	582
Total Volume	53	655	131	0	839	103	111	507	0	721	282	388	57	0	727	50	28	55	0	133	2420
% App. Total	6.3	78.1	15.6	0		14.3	15.4	70.3	0		38.8	53.4	7.8	0		37.6	21.1	41.4	0		
PHF	.631	.936	.819	.000	.928	.920	.578	.813	.000	.794	.829	.789	.792	.000	.904	.833	.700	.859	.000	.853	.948



Kimley-Horn : Lisle (IL)
1001 Warrenville Road, Suite 350
Lisle, Illinois, United States 60532
331.481.7332 devin.moore@kimley-horn.com

Count Name: Cottonwood and 95A
Site Code: 192100000
Start Date: 11/05/2019
Page No: 1

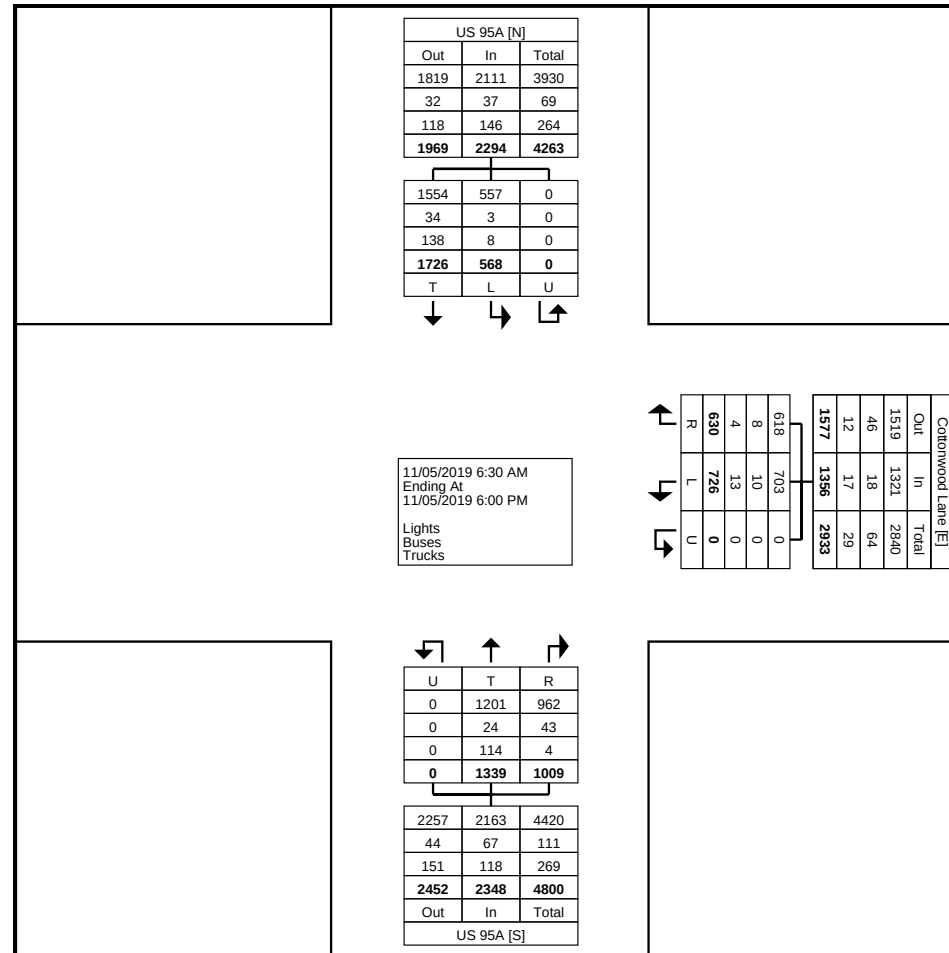
Turning Movement Data

Start Time	US 95A Southbound				Cottonwood Lane Westbound				US 95A Northbound				Int. Total
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
6:30 AM	50	5	0	55	27	24	0	51	36	44	0	80	186
6:45 AM	75	9	0	84	24	53	0	77	36	53	0	89	250
Hourly Total	125	14	0	139	51	77	0	128	72	97	0	169	436
7:00 AM	172	7	0	179	60	58	0	118	52	77	0	129	426
7:15 AM	165	11	0	176	62	49	0	111	90	96	0	186	473
7:30 AM	43	8	0	51	34	20	0	54	36	55	0	91	196
7:45 AM	41	10	0	51	27	18	0	45	28	56	0	84	180
Hourly Total	421	36	0	457	183	145	0	328	206	284	0	490	1275
8:00 AM	43	14	0	57	51	24	0	75	20	69	0	89	221
8:15 AM	48	22	0	70	40	21	0	61	16	60	0	76	207
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	91	36	0	127	91	45	0	136	36	129	0	165	428
1:30 PM	47	12	0	59	12	29	0	41	24	66	0	90	190
1:45 PM	62	16	0	78	18	39	0	57	39	42	0	81	216
Hourly Total	109	28	0	137	30	68	0	98	63	108	0	171	406
2:00 PM	93	15	0	108	22	47	0	69	34	44	0	78	255
2:15 PM	57	15	0	72	24	23	0	47	99	120	0	219	338
2:30 PM	52	18	0	70	12	28	0	40	32	48	0	80	190
2:45 PM	62	22	0	84	24	22	0	46	41	51	0	92	222
Hourly Total	264	70	0	334	82	120	0	202	206	263	0	469	1005
3:00 PM	75	20	0	95	27	23	0	50	28	61	0	89	234
3:15 PM	59	28	0	87	26	20	0	46	24	41	0	65	198
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	134	48	0	182	53	43	0	96	52	102	0	154	432
4:00 PM	74	29	0	103	16	28	0	44	39	45	0	84	231
4:15 PM	68	32	0	100	20	30	0	50	52	47	0	99	249
4:30 PM	81	52	0	133	14	15	0	29	40	34	0	74	236
4:45 PM	57	41	0	98	16	35	0	51	37	49	0	86	235
Hourly Total	280	154	0	434	66	108	0	174	168	175	0	343	951
5:00 PM	85	51	0	136	14	31	0	45	51	55	0	106	287
5:15 PM	72	51	0	123	23	32	0	55	62	40	0	102	280
5:30 PM	75	38	0	113	19	26	0	45	58	48	0	106	264
5:45 PM	70	42	0	112	18	31	0	49	35	38	0	73	234
Hourly Total	302	182	0	484	74	120	0	194	206	181	0	387	1065
Grand Total	1726	568	0	2294	630	726	0	1356	1009	1339	0	2348	5998
Approach %	75.2	24.8	0.0	-	46.5	53.5	0.0	-	43.0	57.0	0.0	-	-
Total %	28.8	9.5	0.0	38.2	10.5	12.1	0.0	22.6	16.8	22.3	0.0	39.1	-
Lights	1554	557	0	2111	618	703	0	1321	962	1201	0	2163	5595
% Lights	90.0	98.1	-	92.0	98.1	96.8	-	97.4	95.3	89.7	-	92.1	93.3

Buses	34	3	0	37	8	10	0	18	43	24	0	67	122
% Buses	2.0	0.5	-	1.6	1.3	1.4	-	1.3	4.3	1.8	-	2.9	2.0
Trucks	138	8	0	146	4	13	0	17	4	114	0	118	281
% Trucks	8.0	1.4	-	6.4	0.6	1.8	-	1.3	0.4	8.5	-	5.0	4.7

Kimley-Horn : Lisle (IL)
 1001 Warrenville Road, Suite 350
 Lisle, Illinois, United States 60532
 331.481.7332 devin.moore@kimley-horn.com

Count Name: Cottonwood and 95A
 Site Code: 192100000
 Start Date: 11/05/2019
 Page No: 3



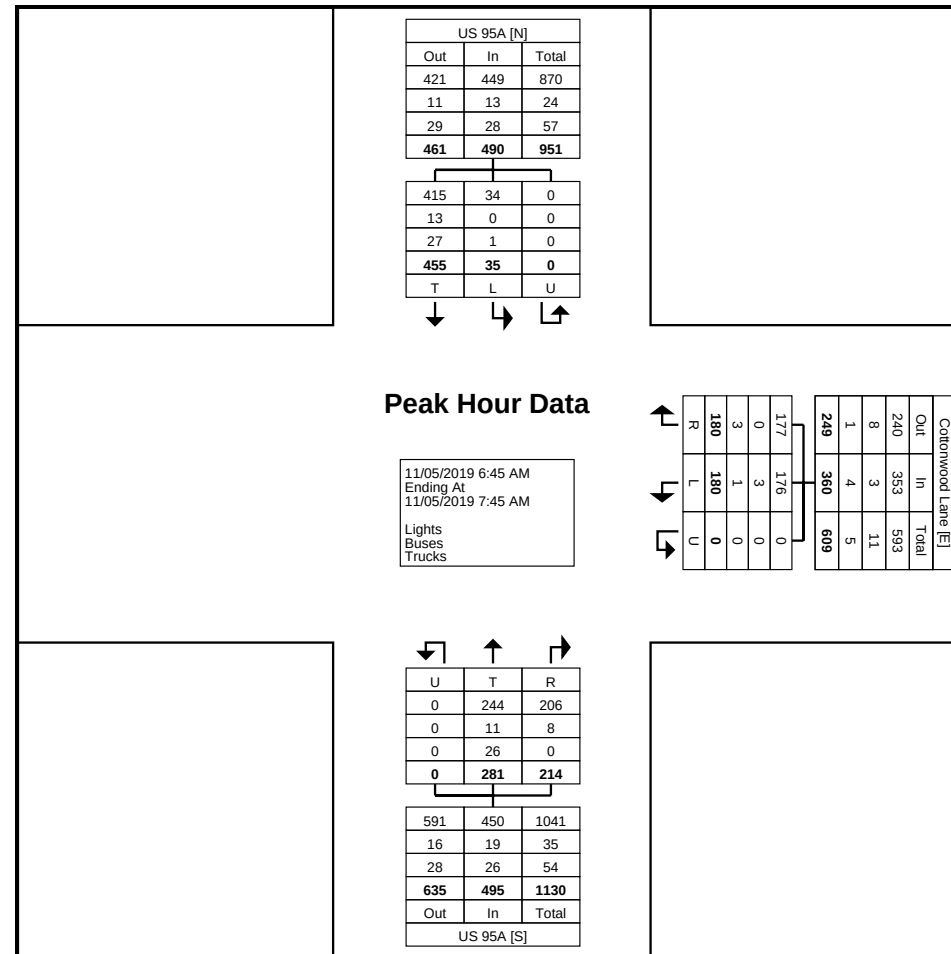
Turning Movement Data Plot

Kimley-Horn : Lisle (IL)
 1001 Warrenville Road, Suite 350
 Lisle, Illinois, United States 60532
 331.481.7332 devin.moore@kimley-horn.com

Count Name: Cottonwood and 95A
 Site Code: 192100000
 Start Date: 11/05/2019
 Page No: 4

Turning Movement Peak Hour Data (6:45 AM)

Start Time	US 95A Southbound				Cottonwood Lane Westbound				US 95A Northbound				Int. Total
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
6:45 AM	75	9	0	84	24	53	0	77	36	53	0	89	250
7:00 AM	172	7	0	179	60	58	0	118	52	77	0	129	426
7:15 AM	165	11	0	176	62	49	0	111	90	96	0	186	473
7:30 AM	43	8	0	51	34	20	0	54	36	55	0	91	196
Total	455	35	0	490	180	180	0	360	214	281	0	495	1345
Approach %	92.9	7.1	0.0	-	50.0	50.0	0.0	-	43.2	56.8	0.0	-	-
Total %	33.8	2.6	0.0	36.4	13.4	13.4	0.0	26.8	15.9	20.9	0.0	36.8	-
PHF	0.661	0.795	0.000	0.684	0.726	0.776	0.000	0.763	0.594	0.732	0.000	0.665	0.711
Lights	415	34	0	449	177	176	0	353	206	244	0	450	1252
% Lights	91.2	97.1	-	91.6	98.3	97.8	-	98.1	96.3	86.8	-	90.9	93.1
Buses	13	0	0	13	0	3	0	3	8	11	0	19	35
% Buses	2.9	0.0	-	2.7	0.0	1.7	-	0.8	3.7	3.9	-	3.8	2.6
Trucks	27	1	0	28	3	1	0	4	0	26	0	26	58
% Trucks	5.9	2.9	-	5.7	1.7	0.6	-	1.1	0.0	9.3	-	5.3	4.3



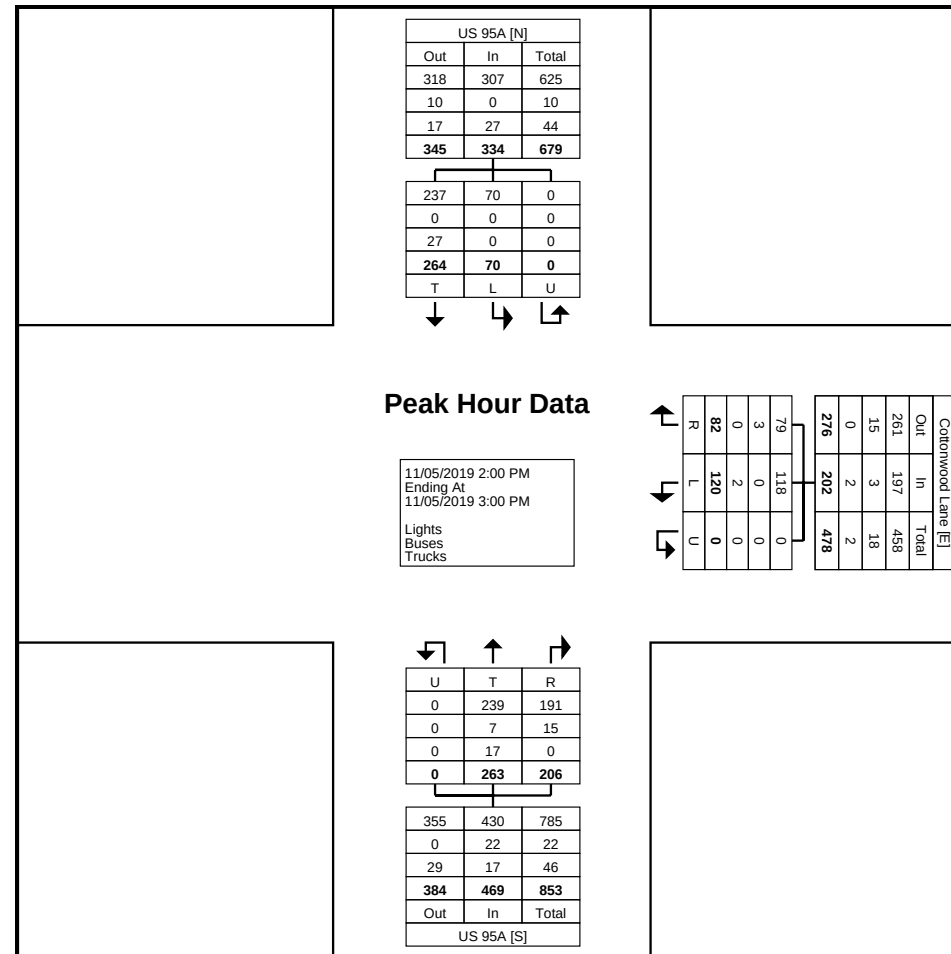
Turning Movement Peak Hour Data Plot (6:45 AM)

Kimley-Horn : Lisle (IL)
 1001 Warrenville Road, Suite 350
 Lisle, Illinois, United States 60532
 331.481.7332 devin.moore@kimley-horn.com

Count Name: Cottonwood and 95A
 Site Code: 192100000
 Start Date: 11/05/2019
 Page No: 6

Turning Movement Peak Hour Data (2:00 PM)

Start Time	US 95A Southbound				Cottonwood Lane Westbound				US 95A Northbound				Int. Total
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
2:00 PM	93	15	0	108	22	47	0	69	34	44	0	78	255
2:15 PM	57	15	0	72	24	23	0	47	99	120	0	219	338
2:30 PM	52	18	0	70	12	28	0	40	32	48	0	80	190
2:45 PM	62	22	0	84	24	22	0	46	41	51	0	92	222
Total	264	70	0	334	82	120	0	202	206	263	0	469	1005
Approach %	79.0	21.0	0.0	-	40.6	59.4	0.0	-	43.9	56.1	0.0	-	-
Total %	26.3	7.0	0.0	33.2	8.2	11.9	0.0	20.1	20.5	26.2	0.0	46.7	-
PHF	0.710	0.795	0.000	0.773	0.854	0.638	0.000	0.732	0.520	0.548	0.000	0.535	0.743
Lights	237	70	0	307	79	118	0	197	191	239	0	430	934
% Lights	89.8	100.0	-	91.9	96.3	98.3	-	97.5	92.7	90.9	-	91.7	92.9
Buses	0	0	0	0	3	0	0	3	15	7	0	22	25
% Buses	0.0	0.0	-	0.0	3.7	0.0	-	1.5	7.3	2.7	-	4.7	2.5
Trucks	27	0	0	27	0	2	0	2	0	17	0	17	46
% Trucks	10.2	0.0	-	8.1	0.0	1.7	-	1.0	0.0	6.5	-	3.6	4.6



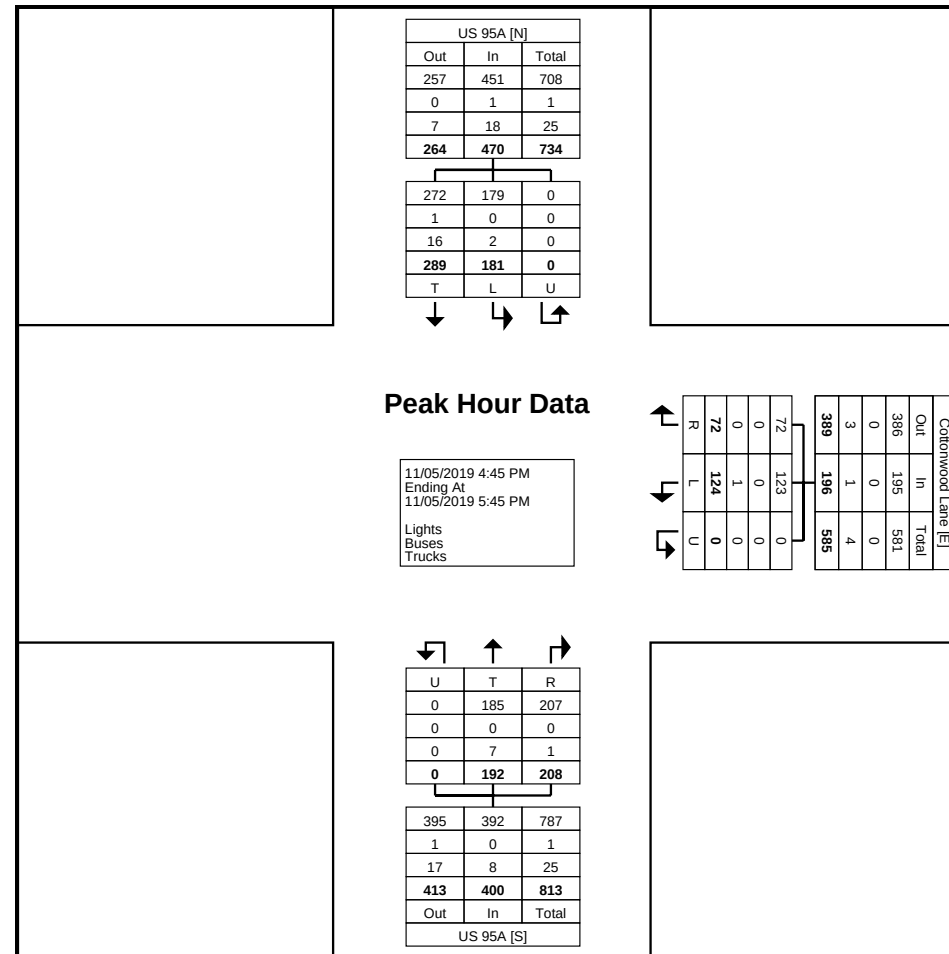
Turning Movement Peak Hour Data Plot (2:00 PM)

Kimley-Horn : Lisle (IL)
 1001 Warrenton Road, Suite 350
 Lisle, Illinois, United States 60532
 331.481.7332 devin.moore@kimley-horn.com

Count Name: Cottonwood and 95A
 Site Code: 192100000
 Start Date: 11/05/2019
 Page No: 8

Turning Movement Peak Hour Data (4:45 PM)

Start Time	US 95A Southbound				Cottonwood Lane Westbound				US 95A Northbound				Int. Total
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
4:45 PM	57	41	0	98	16	35	0	51	37	49	0	86	235
5:00 PM	85	51	0	136	14	31	0	45	51	55	0	106	287
5:15 PM	72	51	0	123	23	32	0	55	62	40	0	102	280
5:30 PM	75	38	0	113	19	26	0	45	58	48	0	106	264
Total	289	181	0	470	72	124	0	196	208	192	0	400	1066
Approach %	61.5	38.5	0.0	-	36.7	63.3	0.0	-	52.0	48.0	0.0	-	-
Total %	27.1	17.0	0.0	44.1	6.8	11.6	0.0	18.4	19.5	18.0	0.0	37.5	-
PHF	0.850	0.887	0.000	0.864	0.783	0.886	0.000	0.891	0.839	0.873	0.000	0.943	0.929
Lights	272	179	0	451	72	123	0	195	207	185	0	392	1038
% Lights	94.1	98.9	-	96.0	100.0	99.2	-	99.5	99.5	96.4	-	98.0	97.4
Buses	1	0	0	1	0	0	0	0	0	0	0	0	1
% Buses	0.3	0.0	-	0.2	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.1
Trucks	16	2	0	18	0	1	0	1	1	7	0	8	27
% Trucks	5.5	1.1	-	3.8	0.0	0.8	-	0.5	0.5	3.6	-	2.0	2.5



Turning Movement Peak Hour Data Plot (4:45 PM)

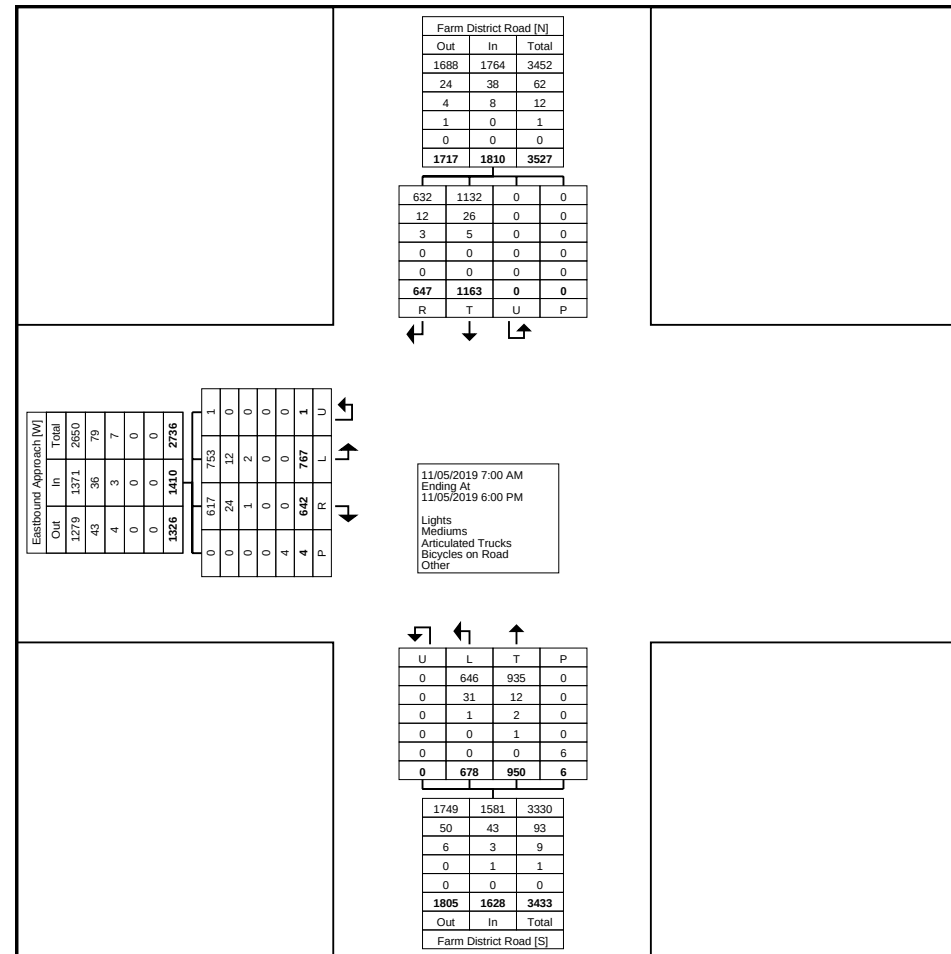
Kimley-Horn : Lisle (IL)
1001 Warrenville Road, Suite 350
Lisle, Illinois, United States 60532
331.481.7332 devin.moore@kimley-horn.com

Count Name: Cottonwood and 95A
Site Code: 192100000
Start Date: 11/05/2019
Page No: 10

Turning Movement Data

Start Time	Farm District Road Southbound					Farm District Road Northbound					Eastbound Approach Eastbound					Int. Total
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	
7:00 AM	25	22	0	0	47	65	63	0	0	128	37	22	0	0	59	234
7:15 AM	25	28	0	0	53	60	55	0	0	115	40	38	0	0	78	246
7:30 AM	15	21	0	0	36	34	24	0	0	58	17	26	0	0	43	137
7:45 AM	24	20	0	0	44	43	29	0	0	72	11	30	0	0	41	157
Hourly Total	89	91	0	0	180	202	171	0	0	373	105	116	0	0	221	774
8:00 AM	48	22	0	0	70	39	30	0	0	69	8	34	0	0	42	181
8:15 AM	54	38	0	0	92	45	40	0	0	85	20	56	0	0	76	253
8:30 AM	25	20	0	0	45	50	29	0	0	79	14	44	0	0	58	182
8:45 AM	12	18	0	0	30	41	17	0	0	58	9	14	0	0	23	111
Hourly Total	139	98	0	0	237	175	116	0	0	291	51	148	0	0	199	727
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	25	26	0	0	51	21	19	0	0	40	25	18	1	0	44	135
2:15 PM	11	20	0	0	31	32	27	0	0	59	30	29	0	0	59	149
2:30 PM	19	41	0	0	60	27	12	0	0	39	18	18	0	0	36	135
2:45 PM	53	53	0	0	106	26	23	0	0	49	24	20	0	1	44	199
Hourly Total	108	140	0	0	248	106	81	0	0	187	97	85	1	1	183	618
3:00 PM	37	38	0	0	75	33	24	0	1	57	24	22	0	0	46	178
3:15 PM	21	51	0	0	72	54	22	0	5	76	24	48	0	0	72	220
3:30 PM	27	61	0	0	88	38	20	0	0	58	32	41	0	0	73	219
3:45 PM	22	67	0	0	89	36	21	0	0	57	23	35	0	1	58	204
Hourly Total	107	217	0	0	324	161	87	0	6	248	103	146	0	1	249	821
4:00 PM	36	87	0	0	123	37	40	0	0	77	28	27	0	0	55	255
4:15 PM	22	56	0	0	78	33	32	0	0	65	38	56	0	1	94	237
4:30 PM	20	73	0	0	93	47	15	0	0	62	34	34	0	0	68	223
4:45 PM	23	90	0	0	113	45	31	0	0	76	44	27	0	0	71	260
Hourly Total	101	306	0	0	407	162	118	0	0	280	144	144	0	1	288	975
5:00 PM	26	81	0	0	107	49	31	0	0	80	48	40	0	0	88	275
5:15 PM	34	81	0	0	115	38	23	0	0	61	35	37	0	0	72	248
5:30 PM	27	80	0	0	107	28	20	0	0	48	38	30	0	1	68	223
5:45 PM	16	69	0	0	85	29	31	0	0	60	21	21	0	0	42	187
Hourly Total	103	311	0	0	414	144	105	0	0	249	142	128	0	1	270	933
Grand Total	647	1163	0	0	1810	950	678	0	6	1628	642	767	1	4	1410	4848
Approach %	35.7	64.3	0.0	-	-	58.4	41.6	0.0	-	-	45.5	54.4	0.1	-	-	-
Total %	13.3	24.0	0.0	-	37.3	19.6	14.0	0.0	-	33.6	13.2	15.8	0.0	-	29.1	-
Lights	632	1132	0	-	1764	935	646	0	-	1581	617	753	1	-	1371	4716
% Lights	97.7	97.3	-	-	97.5	98.4	95.3	-	-	97.1	96.1	98.2	100.0	-	97.2	97.3
Mediums	12	26	0	-	38	12	31	0	-	43	24	12	0	-	36	117
% Mediums	1.9	2.2	-	-	2.1	1.3	4.6	-	-	2.6	3.7	1.6	0.0	-	2.6	2.4
Articulated Trucks	3	5	0	-	8	2	1	0	-	3	1	2	0	-	3	14

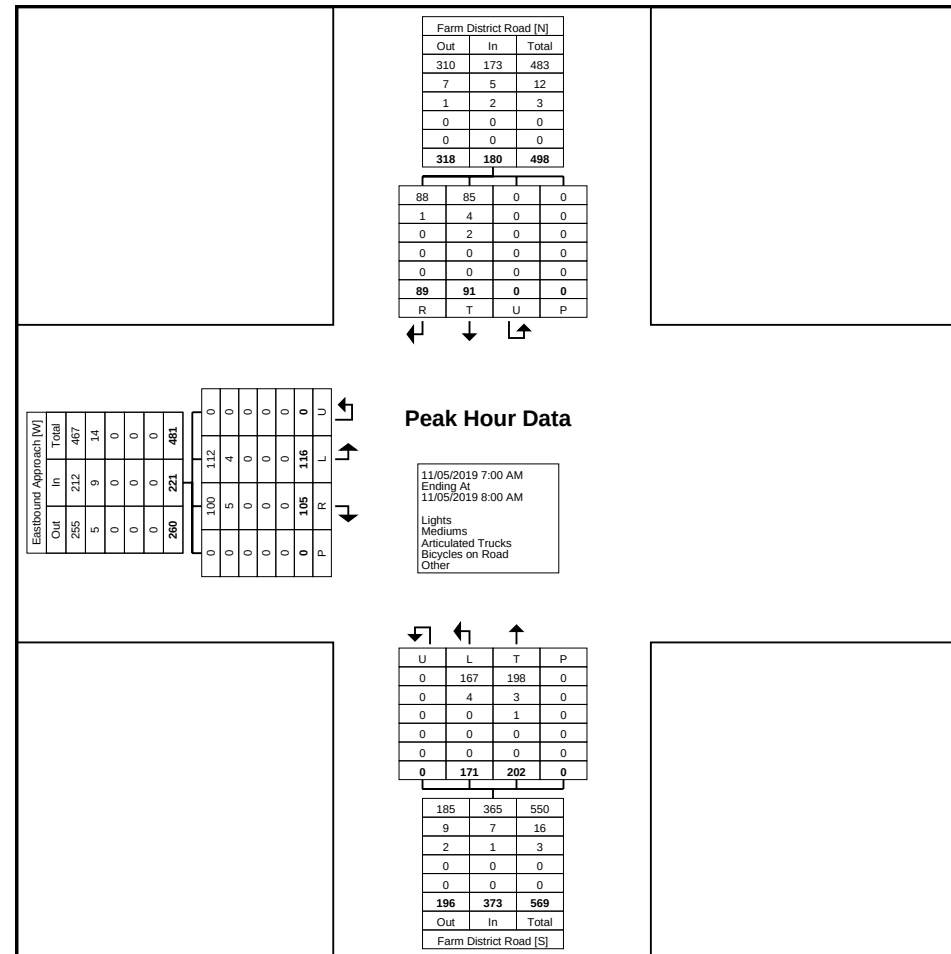
% Articulated Trucks	0.5	0.4	-	-	0.4	0.2	0.1	-	-	0.2	0.2	0.3	0.0	-	0.2	0.3
Bicycles on Road	0	0	0	-	0	1	0	0	-	1	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	-	-	0.0	0.1	0.0	-	-	0.1	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	2	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	0.0	-	-	-	-	50.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	6	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	50.0	-	-



Turning Movement Data Plot

Turning Movement Peak Hour Data (7:00 AM)

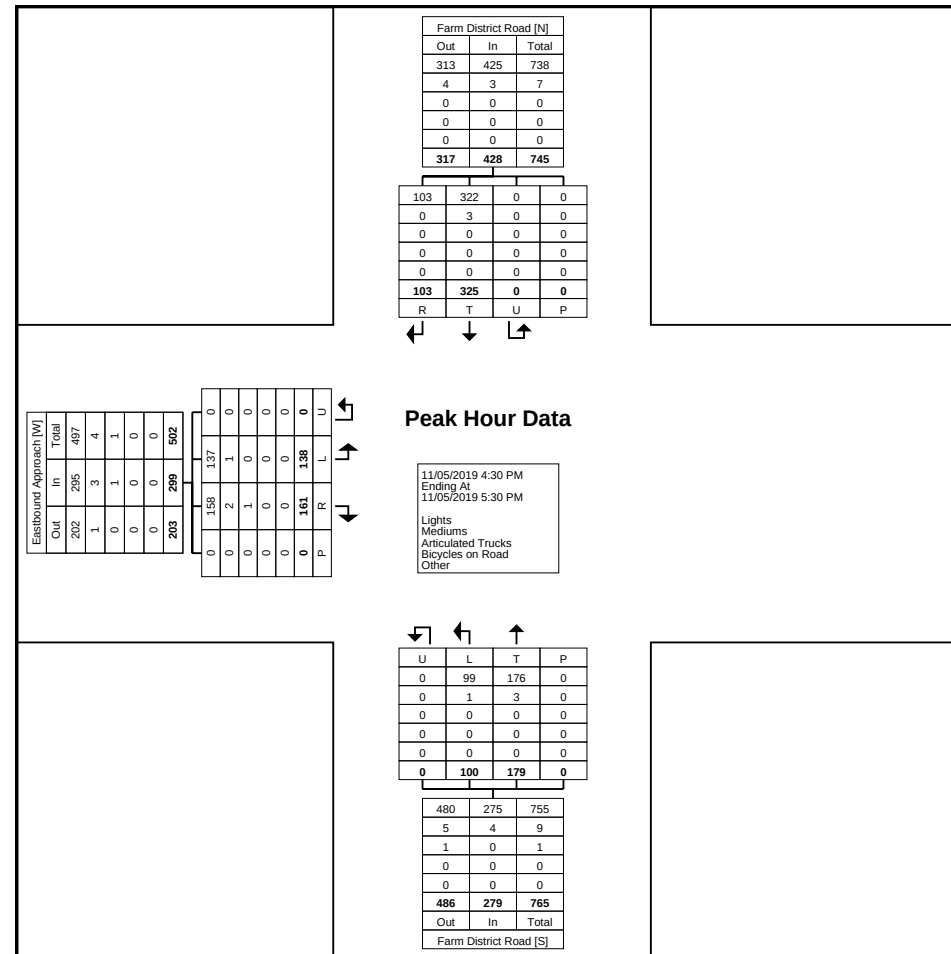
Start Time	Farm District Road Southbound					Farm District Road Northbound					Eastbound Approach Eastbound					Int. Total
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	
7:00 AM	25	22	0	0	47	65	63	0	0	128	37	22	0	0	59	234
7:15 AM	25	28	0	0	53	60	55	0	0	115	40	38	0	0	78	246
7:30 AM	15	21	0	0	36	34	24	0	0	58	17	26	0	0	43	137
7:45 AM	24	20	0	0	44	43	29	0	0	72	11	30	0	0	41	157
Total	89	91	0	0	180	202	171	0	0	373	105	116	0	0	221	774
Approach %	49.4	50.6	0.0	-	-	54.2	45.8	0.0	-	-	47.5	52.5	0.0	-	-	-
Total %	11.5	11.8	0.0	-	23.3	26.1	22.1	0.0	-	48.2	13.6	15.0	0.0	-	28.6	-
PHF	0.890	0.813	0.000	-	0.849	0.777	0.679	0.000	-	0.729	0.656	0.763	0.000	-	0.708	0.787
Lights	88	85	0	-	173	198	167	0	-	365	100	112	0	-	212	750
% Lights	98.9	93.4	-	-	96.1	98.0	97.7	-	-	97.9	95.2	96.6	-	-	95.9	96.9
Mediums	1	4	0	-	5	3	4	0	-	7	5	4	0	-	9	21
% Mediums	1.1	4.4	-	-	2.8	1.5	2.3	-	-	1.9	4.8	3.4	-	-	4.1	2.7
Articulated Trucks	0	2	0	-	2	1	0	0	-	1	0	0	0	-	0	3
% Articulated Trucks	0.0	2.2	-	-	1.1	0.5	0.0	-	-	0.3	0.0	0.0	-	-	0.0	0.4
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (7:00 AM)

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Farm District Road Southbound					Farm District Road Northbound					Eastbound Approach Eastbound					Int. Total
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	
4:30 PM	20	73	0	0	93	47	15	0	0	62	34	34	0	0	68	223
4:45 PM	23	90	0	0	113	45	31	0	0	76	44	27	0	0	71	260
5:00 PM	26	81	0	0	107	49	31	0	0	80	48	40	0	0	88	275
5:15 PM	34	81	0	0	115	38	23	0	0	61	35	37	0	0	72	248
Total	103	325	0	0	428	179	100	0	0	279	161	138	0	0	299	1006
Approach %	24.1	75.9	0.0	-	-	64.2	35.8	0.0	-	-	53.8	46.2	0.0	-	-	-
Total %	10.2	32.3	0.0	-	42.5	17.8	9.9	0.0	-	27.7	16.0	13.7	0.0	-	29.7	-
PHF	0.757	0.903	0.000	-	0.930	0.913	0.806	0.000	-	0.872	0.839	0.863	0.000	-	0.849	0.915
Lights	103	322	0	-	425	176	99	0	-	275	158	137	0	-	295	995
% Lights	100.0	99.1	-	-	99.3	98.3	99.0	-	-	98.6	98.1	99.3	-	-	98.7	98.9
Mediums	0	3	0	-	3	3	1	0	-	4	2	1	0	-	3	10
% Mediums	0.0	0.9	-	-	0.7	1.7	1.0	-	-	1.4	1.2	0.7	-	-	1.0	1.0
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	1	0	0	-	1	1
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.6	0.0	-	-	0.3	0.1
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (4:30 PM)

Kimley-Horn : Lisle (IL)
1001 Warrenville Road, Suite 350
Lisle, Illinois, United States 60532
331.481.7332 devin.moore@kimley-horn.com

Count Name: Cottonwood and Farm District
Site Code: 192100000
Start Date: 11/05/2019
Page No: 8

APPENDIX C

EXISTING CONDITIONS INTERSECTION ANALYSIS REPORTS

HCM 6th Signalized Intersection Summary

Existing AM

1: US 95 A/East St & Main St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	154	105	130	155	0	167	1	145	0	3	1
Future Volume (veh/h)	1	154	105	130	155	0	167	1	145	0	3	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	164	112	138	165	0	178	1	154	0	3	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	328	224	394	380	0	827	5	725	0	617	206
Arrive On Green	0.00	0.32	0.32	0.20	0.20	0.00	0.46	0.46	0.46	0.00	0.46	0.46
Sat Flow, veh/h	1853	1036	707	1147	1870	0	1412	10	1576	0	1342	447
Grp Volume(v), veh/h	1	0	276	138	165	0	178	0	155	0	0	4
Grp Sat Flow(s),veh/h/ln	1853	0	1743	1147	1870	0	1412	0	1587	0	0	1790
Q Serve(g_s), s	0.0	0.0	5.2	4.5	3.1	0.0	3.1	0.0	2.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	5.2	5.1	3.1	0.0	3.2	0.0	2.4	0.0	0.0	0.0
Prop In Lane	1.00		0.41	1.00		0.00	1.00		0.99	0.00		0.25
Lane Grp Cap(c), veh/h	5	0	551	394	380	0	827	0	730	0	0	823
V/C Ratio(X)	0.22	0.00	0.50	0.35	0.43	0.00	0.22	0.00	0.21	0.00	0.00	0.00
Avail Cap(c_a), veh/h	230	0	1192	675	837	0	827	0	730	0	0	823
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	20.0	0.0	11.2	15.1	14.0	0.0	6.7	0.0	6.5	0.0	0.0	5.9
Incr Delay (d2), s/veh	22.0	0.0	0.7	0.5	0.8	0.0	0.6	0.0	0.7	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.7	1.1	1.2	0.0	0.8	0.0	0.7	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	0.0	11.9	15.6	14.8	0.0	7.3	0.0	7.2	0.0	0.0	5.9
LnGrp LOS	D	A	B	B	B	A	A	A	A	A	A	A
Approach Vol, veh/h	277			303			333			4		
Approach Delay, s/veh	12.0			15.2			7.3			5.9		
Approach LOS	B			B			A			A		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	23.0			17.2			23.0			4.6		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.5			27.5			18.5			5.0		
Max Q Clear Time (g_c+I1), s	5.2			7.2			2.0			2.0		
Green Ext Time (p_c), s	1.2			1.7			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	11.3											
HCM 6th LOS	B											

LANE SUMMARY



Site: 101 [2 - Main Street and Farm District Road - Existing AM]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Farm District Road													
Lane 1 ^d	352	3.0	765	0.460	100	11.0	LOS B	2.7	68.8	Full	1600	0.0	0.0
Lane 2	48	3.0	1626	0.029	6 ⁵	0.0	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	400	3.0		0.460		9.6	LOS A	2.7	68.8				
East: US 50A													
Lane 1 ^d	217	3.0	869	0.250	100	6.8	LOS A	1.0	26.7	Full	1600	0.0	0.0
Lane 2	407	3.0	1626	0.250	100	0.0	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	624	3.0		0.250		2.4	LOS A	1.0	26.7				
North: US 95A													
Lane 1 ^d	366	3.0	1203	0.305	100	5.8	LOS A	1.5	38.7	Full	1600	0.0	0.0
Lane 2	220	3.0	1626	0.135	44 ⁵	0.0	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	586	3.0		0.305		3.6	LOS A	1.5	38.7				
West: Main Street													
Lane 1 ^d	347	3.0	971	0.357	100	7.5	LOS A	1.7	43.3	Full	1600	0.0	0.0
Lane 2	45	3.0	1626	0.027	8 ⁵	0.0	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	391	3.0		0.357		6.7	LOS A	1.7	43.3				
Intersection	2001	3.0		0.460		5.0	LOS A	2.7	68.8				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KIMLEY-HORN & ASSOCIATES INC | Processed: Friday, October 18, 2019 9:37:26 AM

Project: K:\REN_Civil\192100000 - Fernley TMP\Synchro\Roundabout Analysis.sip8

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr & Fremont St

Existing AM

												
Movement	WBL	WBR	WBR2	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	44	6	52	16	4	51	76	803	35	35	409	23
Future Volume (veh/h)	44	6	52	16	4	51	76	803	35	35	409	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No			No			No	
Adj Sat Flow, veh/h/ln	1945	1796	1796	1870	1870	1945	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	45	54	54	16	16	53	78	828	36	36	422	24
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	82	518	518	35	35	476	110	998	43	68	903	51
Arrive On Green	0.04	0.34	0.34	0.02	0.02	0.32	0.06	0.29	0.29	0.04	0.26	0.26
Sat Flow, veh/h	1853	1507	1507	1781	1781	1490	1781	3469	151	1781	3418	194
Grp Volume(v), veh/h	45	60	60	16	16	57	78	424	440	36	219	227
Grp Sat Flow(s),veh/h/ln	1853	1674	1674	1781	1781	1602	1781	1777	1843	1781	1777	1835
Q Serve(g_s), s	1.4	1.4	1.4	0.5	0.5	1.5	2.5	12.9	12.9	1.2	6.0	6.0
Cycle Q Clear(g_c), s	1.4	1.4	1.4	0.5	0.5	1.5	2.5	12.9	12.9	1.2	6.0	6.0
Prop In Lane	1.00	0.90	0.90	1.00	1.00	0.93	1.00		0.08	1.00		0.11
Lane Grp Cap(c), veh/h	82	576	576	35	35	511	110	511	530	68	469	485
V/C Ratio(X)	0.55	0.10	0.10	0.46	0.46	0.11	0.71	0.83	0.83	0.53	0.47	0.47
Avail Cap(c_a), veh/h	160	576	576	154	154	511	157	567	588	154	564	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	12.9	12.9	28.1	28.1	13.9	26.7	19.3	19.3	27.4	17.9	17.9
Incr Delay (d2), s/veh	5.5	0.4	0.4	9.1	9.1	0.4	8.1	9.2	8.9	6.4	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.5	0.5	0.3	0.3	0.6	1.2	6.0	6.1	0.6	2.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	13.3	13.3	37.2	37.2	14.4	34.8	28.5	28.2	33.7	18.6	18.6
LnGrp LOS	C	B	B	D	D	B	C	C	C	C	B	B
Approach Vol, veh/h	105			73	73			942			482	
Approach Delay, s/veh	21.6			19.4	19.4			28.9			19.7	
Approach LOS	C			B	B			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.6	24.4	6.7	21.2	7.1	23.0	8.1	19.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.5	5.0	18.5	5.0	18.5	5.1	18.4				
Max Q Clear Time (g_c+I1), s	2.5	3.4	3.2	14.9	3.4	3.5	4.5	8.0				
Green Ext Time (p_c), s	0.0	0.1	0.0	1.7	0.0	0.1	0.0	1.8				
Intersection Summary												
HCM 6th Ctrl Delay				25.2								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary 4: Newlands Rd & US 95 A

Existing AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	36	16	18	163	16	35	15	630	235	58	282	17
Future Volume (veh/h)	36	16	18	163	16	35	15	630	235	58	282	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	17	19	175	17	38	16	677	253	62	303	18
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	71	553	493	275	656	556	35	897	400	186	1019	455
Arrive On Green	0.04	0.31	0.31	0.08	0.35	0.35	0.02	0.25	0.25	0.05	0.29	0.29
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	39	17	19	175	17	38	16	677	253	62	303	18
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	1.3	0.4	0.5	2.9	0.4	0.9	0.5	10.5	8.4	1.0	4.0	0.5
Cycle Q Clear(g_c), s	1.3	0.4	0.5	2.9	0.4	0.9	0.5	10.5	8.4	1.0	4.0	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	71	553	493	275	656	556	35	897	400	186	1019	455
V/C Ratio(X)	0.55	0.03	0.04	0.64	0.03	0.07	0.46	0.75	0.63	0.33	0.30	0.04
Avail Cap(c_a), veh/h	165	553	493	320	656	556	150	1076	480	291	1076	480
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	14.2	14.3	26.5	12.6	12.8	28.8	20.5	19.8	27.1	16.5	15.3
Incr Delay (d2), s/veh	6.4	0.1	0.1	3.3	0.1	0.2	9.2	2.5	2.0	1.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.2	0.2	1.2	0.1	0.3	0.3	4.2	3.0	0.4	1.5	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.4	14.3	14.4	29.8	12.7	13.1	38.0	23.0	21.7	28.1	16.7	15.3
LnGrp LOS	C	B	B	C	B	B	D	C	C	C	B	B
Approach Vol, veh/h	75				230				946			
Approach Delay, s/veh	24.8				25.8				22.9			
Approach LOS	C				C				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	25.3	7.7	19.5	9.2	23.0	5.7	21.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	18.5	5.0	18.0	5.5	18.5	5.0	18.0				
Max Q Clear Time (g_c+I1), s	3.3	2.9	3.0	12.5	4.9	2.5	2.5	6.0				
Green Ext Time (p_c), s	0.0	0.1	0.0	2.5	0.0	0.1	0.0	1.5				
Intersection Summary												
HCM 6th Ctrl Delay	22.4											
HCM 6th LOS	C											

Intersection						
Int Delay, s/veh	5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	180	180	281	214	35	455
Future Vol, veh/h	180	180	281	214	35	455
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	194	194	302	230	38	489
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	982	417	0	0	532	0
Stage 1	417	-	-	-	-	-
Stage 2	565	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	276	636	-	-	1036	-
Stage 1	665	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	266	636	-	-	1036	-
Mov Cap-2 Maneuver	394	-	-	-	-	-
Stage 1	665	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	17.9	0		0.6		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT	
Capacity (veh/h)	-	-	394	636	1036	-
HCM Lane V/C Ratio	-	-	0.491	0.304	0.036	-
HCM Control Delay (s)	-	-	22.6	13.1	8.6	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	2.6	1.3	0.1	-

Intersection						
Int Delay, s/veh	6.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	116	105	171	202	91	89
Future Vol, veh/h	116	105	171	202	91	89
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	125	113	184	217	98	96
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	683	98	194	0	-	0
Stage 1	98	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	415	958	1379	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	360	958	1379	-	-	-
Mov Cap-2 Maneuver	360	-	-	-	-	-
Stage 1	803	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	18	3.7		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1379	-	512	-	-	
HCM Lane V/C Ratio	0.133	-	0.464	-	-	
HCM Control Delay (s)	8	-	18	-	-	
HCM Lane LOS	A	-	C	-	-	
HCM 95th %tile Q(veh)	0.5	-	2.4	-	-	

HCM 6th Signalized Intersection Summary

Existing PM

1: US 95 A/East St & Main St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	333	191	209	208	4	120	4	145	9	3	0
Future Volume (veh/h)	0	333	191	209	208	4	120	4	145	9	3	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	351	201	220	219	4	126	4	153	9	3	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	454	260	278	744	14	742	16	613	471	138	0
Arrive On Green	0.00	0.41	0.41	0.41	0.41	0.41	0.40	0.40	0.40	0.40	0.40	0.00
Sat Flow, veh/h	1853	1116	639	890	1831	33	1414	41	1551	840	349	0
Grp Volume(v), veh/h	0	0	552	220	0	223	126	0	157	12	0	0
Grp Sat Flow(s),veh/h/ln	1853	0	1755	890	0	1864	1414	0	1591	1189	0	0
Q Serve(g_s), s	0.0	0.0	12.4	6.1	0.0	3.7	0.0	0.0	3.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	12.4	18.5	0.0	3.7	2.1	0.0	3.0	3.0	0.0	0.0
Prop In Lane	1.00		0.36	1.00		0.02	1.00		0.97	0.75		0.00
Lane Grp Cap(c), veh/h	4	0	714	278	0	758	742	0	629	609	0	0
V/C Ratio(X)	0.00	0.00	0.77	0.79	0.00	0.29	0.17	0.00	0.25	0.02	0.00	0.00
Avail Cap(c_a), veh/h	204	0	1080	278	0	758	742	0	629	609	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	11.7	21.1	0.0	9.1	8.9	0.0	9.2	8.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	2.0	14.4	0.0	0.2	0.5	0.0	0.9	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.3	3.3	0.0	1.3	0.8	0.0	1.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	13.7	35.5	0.0	9.3	9.4	0.0	10.2	8.5	0.0	0.0
LnGrp LOS	A	A	B	D	A	A	A	A	B	A	A	A
Approach Vol, veh/h	552		443			283			12			
Approach Delay, s/veh	13.7		22.3			9.8			8.5			
Approach LOS	B		C			A			A			
Timer - Assigned Phs	2		4		6		7	8				
Phs Duration (G+Y+Rc), s	22.5		23.0		22.5		0.0	23.0				
Change Period (Y+Rc), s	4.5		4.5		4.5		4.5	4.5				
Max Green Setting (Gmax), s	18.0		28.0		18.0		5.0	18.5				
Max Q Clear Time (g_c+I1), s	5.0		14.4		5.0		0.0	20.5				
Green Ext Time (p_c), s	1.1		3.3		0.0		0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	15.7											
HCM 6th LOS	B											

LANE SUMMARY

 **Site: 101 [2 - Main Street and Farm District Road - Existing PM]**

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Farm District Road													
Lane 1 ^d	211	3.0	441	0.478	100	17.8	LOS C	2.2	56.7	Full	1600	0.0	0.0
Lane 2	55	3.0	1626	0.034	7 ⁵	0.0	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	266	3.0		0.478		14.1	LOS B	2.2	56.7				
East: US 50A													
Lane 1 ^d	205	3.0	946	0.217	100	5.9	LOS A	0.9	23.1	Full	1600	0.0	0.0
Lane 2	353	3.0	1626	0.217	100	0.0	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	558	3.0		0.217		2.2	LOS A	0.9	23.1				
North: US 95A													
Lane 1 ^d	1168	3.0	1214	0.963	100	36.2	LOS E	59.1	1513.7	Full	1600	0.0	3.4
Lane 2	439	3.0	1626	0.270	28 ⁵	0.0	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1608	3.0		0.963		26.3	LOS D	59.1	1513.7				
West: Main Street													
Lane 1 ^d	548	3.0	458	1.197	100	135.8	LOS F	39.4	1008.0	Full	1600	0.0	0.0
Lane 2	293	3.0	1626	0.181	15 ⁵	0.0	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	841	3.0		1.197		88.4	LOS F	39.4	1008.0				
Intersection	3273	3.0		1.197		37.2	LOS E	59.1	1513.7				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: KIMLEY-HORN & ASSOCIATES INC | Processed: Friday, October 18, 2019 9:37:21 AM

Project: K:\REN_Civil\192100000 - Fernley TMP\Synchro\Roundabout Analysis.sip8

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr & Fremont St

Existing PM

												
Movement	WBL	WBR	WBR2	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	138	14	50	30	28	251	156	645	35	87	1098	43
Future Volume (veh/h)	138	14	50	30	28	251	156	645	35	87	1098	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No			No			No	
Adj Sat Flow, veh/h/ln	1945	1796	1796	1870	1870	1945	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	142	52	52	31	31	259	161	665	36	90	1132	44
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	400	400	54	54	338	195	1376	74	116	1244	48
Arrive On Green	0.09	0.30	0.30	0.03	0.03	0.23	0.11	0.40	0.40	0.07	0.36	0.36
Sat Flow, veh/h	1853	1342	1342	1781	1781	1448	1781	3428	185	1781	3487	136
Grp Volume(v), veh/h	142	66	66	31	31	288	161	344	357	90	577	599
Grp Sat Flow(s),veh/h/ln	1853	1704	1704	1781	1781	1610	1781	1777	1837	1781	1777	1846
Q Serve(g_s), s	6.6	2.5	2.5	1.5	1.5	14.6	7.8	12.6	12.7	4.4	27.1	27.1
Cycle Q Clear(g_c), s	6.6	2.5	2.5	1.5	1.5	14.6	7.8	12.6	12.7	4.4	27.1	27.1
Prop In Lane	1.00	0.79	0.79	1.00	1.00	0.90	1.00		0.10	1.00		0.07
Lane Grp Cap(c), veh/h	176	508	508	54	54	376	195	713	737	116	634	659
V/C Ratio(X)	0.81	0.13	0.13	0.58	0.58	0.77	0.83	0.48	0.48	0.78	0.91	0.91
Avail Cap(c_a), veh/h	179	508	508	118	118	376	213	713	737	209	658	684
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.9	22.5	22.5	42.0	42.0	31.4	38.2	19.5	19.5	40.4	26.9	26.9
Incr Delay (d2), s/veh	22.9	0.5	0.5	9.4	9.4	13.8	21.2	0.5	0.5	10.6	16.4	16.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	1.1	1.1	0.8	0.8	7.1	4.4	5.0	5.2	2.2	13.6	14.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.8	23.0	23.0	51.3	51.3	45.2	59.5	20.0	20.0	51.0	43.2	42.8
LnGrp LOS	E	C	C	D	D	D	E	C	C	D	D	D
Approach Vol, veh/h	208			319	319			862			1266	
Approach Delay, s/veh	49.5			45.8	45.8			27.4			43.6	
Approach LOS	D			D	D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.2	30.7	10.2	39.7	12.8	25.0	14.1	35.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.8	23.2	10.3	32.7	8.5	20.5	10.5	32.5				
Max Q Clear Time (g_c+l1), s	3.5	4.5	6.4	14.7	8.6	16.6	9.8	29.1				
Green Ext Time (p_c), s	0.0	0.1	0.1	4.0	0.0	0.4	0.0	2.2				
Intersection Summary												
HCM 6th Ctrl Delay				39.1								
HCM 6th LOS				D								

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

Existing PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	55	28	50	507	111	103	57	388	282	131	655	53
Future Volume (veh/h)	55	28	50	507	111	103	57	388	282	131	655	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	58	29	53	534	117	108	60	408	297	138	689	56
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	82	499	445	655	793	672	83	833	372	216	889	396
Arrive On Green	0.05	0.28	0.28	0.19	0.42	0.42	0.05	0.23	0.23	0.06	0.25	0.25
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	58	29	53	534	117	108	60	408	297	138	689	56
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	2.5	0.9	1.9	11.5	3.0	3.3	2.6	7.7	13.7	3.0	13.9	2.1
Cycle Q Clear(g_c), s	2.5	0.9	1.9	11.5	3.0	3.3	2.6	7.7	13.7	3.0	13.9	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	82	499	445	655	793	672	83	833	372	216	889	396
V/C Ratio(X)	0.71	0.06	0.12	0.81	0.15	0.16	0.72	0.49	0.80	0.64	0.78	0.14
Avail Cap(c_a), veh/h	166	499	445	916	793	672	173	1126	502	335	1126	502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.4	20.3	20.7	30.0	13.7	13.8	36.3	25.6	27.9	35.4	27.0	22.5
Incr Delay (d2), s/veh	10.6	0.2	0.5	4.0	0.4	0.5	11.0	0.4	6.5	3.1	2.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.4	0.8	4.9	1.2	1.2	1.3	3.1	5.5	1.3	5.9	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.0	20.6	21.2	34.0	14.1	14.3	47.3	26.0	34.4	38.5	29.6	22.7
LnGrp LOS	D	C	C	C	B	B	D	C	C	D	C	C
Approach Vol, veh/h		140			759			765			883	
Approach Delay, s/veh		31.8			28.1			30.9			30.6	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	37.3	9.3	22.6	19.2	26.2	8.1	23.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.2	32.8	7.5	24.5	20.5	19.5	7.5	24.5				
Max Q Clear Time (g_c+l1), s	4.5	5.3	5.0	15.7	13.5	3.9	4.6	15.9				
Green Ext Time (p_c), s	0.0	1.0	0.1	2.5	1.2	0.3	0.0	3.0				
Intersection Summary												
HCM 6th Ctrl Delay			30.0									
HCM 6th LOS			C									

Intersection						
Int Delay, s/veh	5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	124	72	192	208	181	289
Future Vol, veh/h	124	72	192	208	181	289
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	133	77	206	224	195	311
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1019	318	0	0	430	0
Stage 1	318	-	-	-	-	-
Stage 2	701	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	263	723	-	-	1129	-
Stage 1	738	-	-	-	-	-
Stage 2	492	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	218	723	-	-	1129	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	407	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	18.8	0		3.4		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT	
Capacity (veh/h)	-	-	326	723	1129	-
HCM Lane V/C Ratio	-	-	0.409	0.107	0.172	-
HCM Control Delay (s)	-	-	23.5	10.6	8.9	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.9	0.4	0.6	-

Intersection						
Int Delay, s/veh	9.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	138	161	100	179	325	103
Future Vol, veh/h	138	161	100	179	325	103
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	148	173	108	192	349	111
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	757	349	460	0	-	0
Stage 1	349	-	-	-	-	-
Stage 2	408	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	375	694	1101	-	-	-
Stage 1	714	-	-	-	-	-
Stage 2	671	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	338	694	1101	-	-	-
Mov Cap-2 Maneuver	338	-	-	-	-	-
Stage 1	644	-	-	-	-	-
Stage 2	671	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	28.1	3.1		0		
HCM LOS	D					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1101	-	467	-	-	
HCM Lane V/C Ratio	0.098	-	0.688	-	-	
HCM Control Delay (s)	8.6	-	28.1	-	-	
HCM Lane LOS	A	-	D	-	-	
HCM 95th %tile Q(veh)	0.3	-	5.2	-	-	

APPENDIX D

SIGNAL WARRANT ANALYSIS RESULTS

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: Farm District Road NB SB # OF APPROACH LANES: 1

MINOR STREET: Cottonwood Lane EB WB # OF APPROACH LANES: 1

CITY, STATE: Fernley, Nevada

COMMENTS: Transportation Master Plan

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): N

			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2	WARRANT 3
					MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	Four-Hour	Peak Hour
THRESHOLD VALUES					500	150		750	75		400	120		600	60			
06:00 AM	TO	07:00 AM	0	0														
07:00 AM	TO	08:00 AM	553	221	Y	Y	Y		Y		Y	Y	Y		Y			
08:00 AM	TO	09:00 AM	528	199	Y	Y	Y		Y		Y	Y	Y		Y			
09:00 AM	TO	10:00 AM	0	0														
10:00 AM	TO	11:00 AM	0	0														
11:00 AM	TO	12:00 PM	0	0														
12:00 PM	TO	01:00 PM	0	0														
01:00 PM	TO	02:00 PM	0	0														
02:00 PM	TO	03:00 PM	435	183		Y			Y		Y	Y	Y		Y			
03:00 PM	TO	04:00 PM	572	249	Y	Y	Y		Y		Y	Y	Y		Y		Y	
04:00 PM	TO	05:00 PM	687	288	Y	Y	Y		Y		Y	Y	Y	Y	Y	Y	Y	
05:00 PM	TO	06:00 PM	663	270	Y	Y	Y		Y		Y	Y	Y	Y	Y	Y	Y	
06:00 PM	TO	07:00 PM	0	0														
07:00 PM	TO	08:00 PM	0	0														
08:00 PM	TO	09:00 PM	0	0														
09:00 PM	TO	10:00 PM	0	0														
			3,438	1,410	5	6	5	0	6	0	6	6	6	2	6	2	3	0
					8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
					NOT SATISFIED			NOT SATISFIED			NOT SATISFIED						NOT SATISFIED	NOT SATISFIED

04/07/20
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2009 MUTCD)

MAJOR STREET: US 95 NB SB # OF APPROACH LANES: 1

MINOR STREET: Cottonwood Lane EB WB # OF APPROACH LANES: 1

CITY, STATE: Fernley, Nevada

COMMENTS: Transportation Master Plan

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): Y

			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2	WARRANT 3
					MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	Four-Hour	Peak Hour
THRESHOLD VALUES					350	105		525	53		280	84		420	42			
06:30 AM	TO	07:30 AM	978	357	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
07:30 AM	TO	08:30 AM	569	235	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
-	TO	-	0	0														
09:00 AM	TO	10:00 AM	0	0														
10:00 AM	TO	11:00 AM	0	0														
11:00 AM	TO	12:00 PM	0	0														
12:00 PM	TO	01:00 PM	0	0														
01:30 PM	TO	02:30 PM	785	0	Y			Y			Y			Y				
02:30 PM	TO	03:30 PM	803	214	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
-	TO	-	0	0														
04:00 PM	TO	05:00 PM	777	174	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
05:00 PM	TO	06:00 PM	871	194	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
06:00 PM	TO	07:00 PM	0	0														
07:00 PM	TO	08:00 PM	0	0														
08:00 PM	TO	09:00 PM	0	0														
09:00 PM	TO	10:00 PM	0	0														
			4,783	1,174	6	5	5	6	5	5	6	5	5	6	5	5	5	5
					8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
					NOT SATISFIED			NOT SATISFIED			NOT SATISFIED						SATISFIED	SATISFIED

04/07/20
Kimley-Horn and Associates

APPENDIX E

ORIGIN-DESTINATION DATA AND ANALYSIS

Big Data Analysis

To help understand existing travel patterns within the City, a ‘big data’ analysis was performed using origin-destination data obtained from StreetLight Data’s On-Demand Platform. Based on selected customized geographic zones and time period, StreetLight Data anonymized and aggregated location-based data and navigation GPS data from mobile device applications and connected vehicles into origin-destination (O-D) pairs with several travel attributes including trip purpose, day of trip, time of trip, trip origin, and trip destination. The purposes of the trips are categorized into the following:

- Home-Based Work (HBW): Travel between home and work in either direction.
- Home-Based Other (HBO): Travel to or from home, to anywhere other than work.
- Non-Home Based (NHB): All travel not to or from home (i.e. all travel other than the above)

Through its machine learning and algorithmic processing, the StreetLight platform establishes the duration and frequency of a mobile device’s location to infer home and work locations, allowing the data to be categorized into home-based work trips. A “Home Zone” is designated to a trip if a particular device spends a majority of nighttime hours (9 PM to 6 AM) at a specific location, and a “Work Zone” is designated if a particular device spends a majority of daytime hours (8 AM to 5 PM) at a specific location over the selected time period.

Data from StreetLight was purchased for the City using the geographic zones shown in the following figure. Four geographic zones were developed for the City to capture existing land use patterns – North Zone, West Zone, Central Zone, and East Zone. The information provided in this section includes a preliminary review of the data, which can be further explored during the TMP process.

The East and Central zones capture primarily residential housing and other land uses. The North and the West zones consist of mainly undeveloped land with most of the trips going to and from truck stops, travel/rest areas, and gas stations along Interstate 80 (I-80) and US 95A. An index number representing truck trips and personal trips was obtained, it was concluded that 40% of the trips passing through the city of Fernley are commercial truck trips.

In addition to the geographic zones, gates or study segments were selected to help analyze common routes that are utilized by passenger vehicle and commercial vehicle trips to enter and exit the City. These study segments as shown in the following figure operate as pass-by gates in the StreetLight Platform. This allows for StreetLight to show the movement of trips and which routes trips take. For the study, there were five study segments created, which include the following:

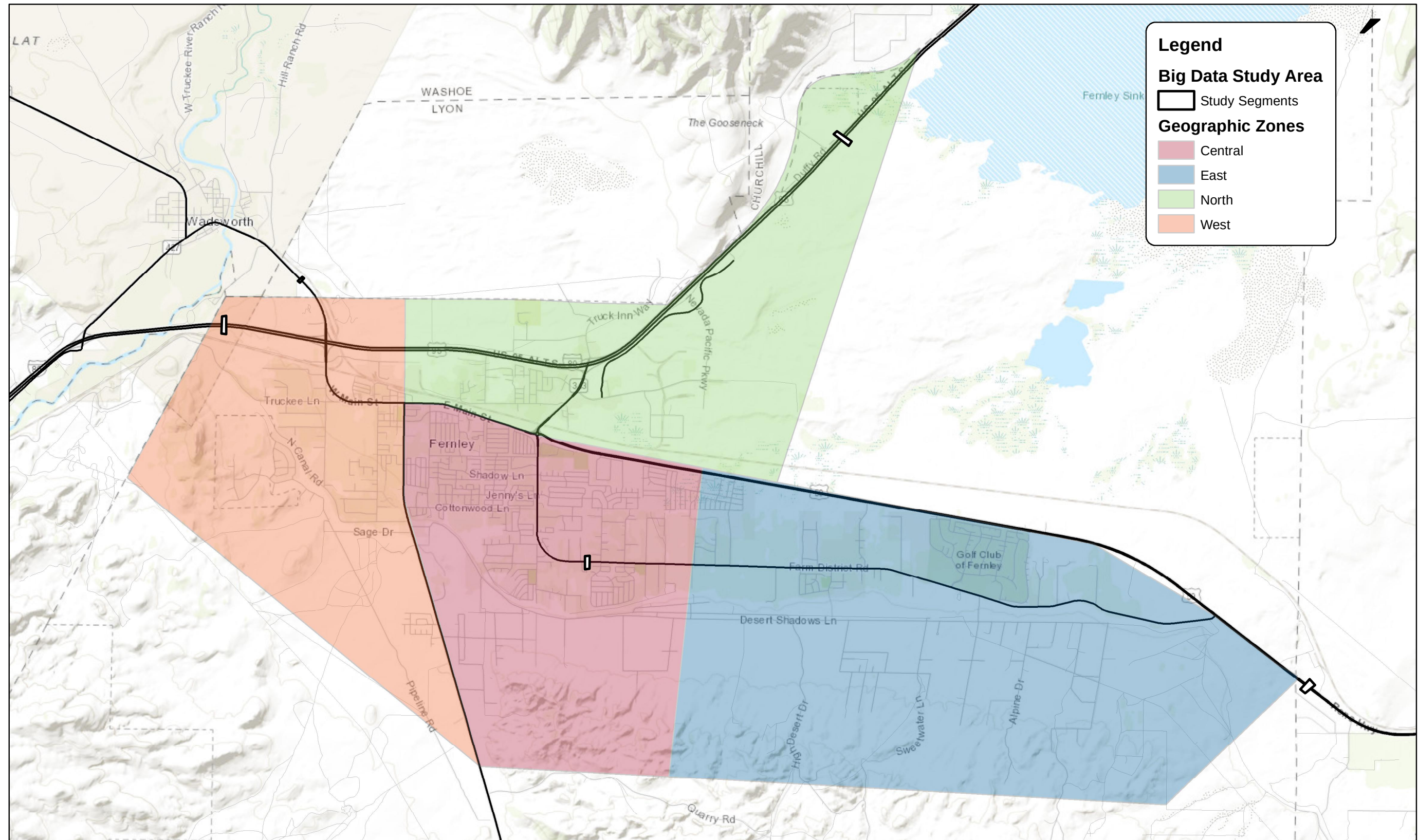
- I-80 (West of the city) – Portion of I-80 west of Main Street
- Main Street (North of the city) – Portion of Main Street north of I-80
- I-80 (Northeast of the city) – Portion of I-80 north of Duffy Road
- SR 828 (Center of the city) – Portion of SR 828 within Fernley
- US 50A (East of the city) – Portion for US 50A east of SR 828

The data shows trips between June 1, 2018 and May 31, 2019 for a full year’s worth of data to avoid seasonal peaks. The data was analyzed for the following elements:

- Show where traffic is coming from (origin) and heading to (destination)

- Inform which routes are being used for travel into and out of the City, allowing for additional recommendations and analyses based on potential closures of a roadway or the construction of a new roadway
- Understand the percent of inbound and outbound trips to Fernley that represent truck traffic
- Understand the percent of vehicle trips that travel outside of Fernley for work and the preferred routes for work trips during peak commute hours

The information shows initial findings from the origin-destination analysis. Further coordination with the Technical Advisory Committee (TAC) is needed to expand on the travel patterns within the City of Fernley for a more detailed look at these insights.



Study Area Map for Big Data Analysis

Big Data Analysis Key Findings

Trip Destinations

An origin-destination analysis on the geographic zones and traffic analysis zones (TAZs) was performed to understand where trips that originate in the City end their trip. The percent of trips by origin (geographic zones within Fernley) and destination (TAZs organized by state) is shown in the following table. A majority of the trips originate in the North and West zone and end within the state of Nevada and California.

As previously noted in the zone description, the North and the West zones have higher commercial truck traffic. The following table shows a significant difference of trips that start in the Central – East Zones, and the North – West Zones. The Central and East Zones show the average trips that originate within those zones also terminate in the state of Nevada, whereas the trips originating from the North and West Zones have about 40% of the trips ending in California.

Percent of Trips by Origin and Destination

		Trip Destination			Origin Percent Total
Trip Origin		Nevada	California	Other State	
	Central Zone	86.3%	12.9%	0.8%	23.4%
	East Zone	91.4%	8.1%	0.5%	14.1%
	North Zone	55.6%	39.8%	4.6%	32.8%
	West Zone	53.1%	40.2%	6.7%	29.7%
Grand Total		67.1%	29.1%	3.7%	100.0%

Preferred Routes

The percentages in the following figures represent the breakdown of total trips for their respective commuter peak hour for an average weekday, based on the purpose and preferred route. A trip was determined to be an AM Peak trip if it occurred between 6 AM and 9 AM, while a trip was determined to be a PM Peak trip if it occurred between 3 PM and 7 PM.

The results show that the common route used for trip travel is I-80. During the AM and PM peak hour, I-80 is a popular route for trip travel, respectively about 49 percent and 32 percent. In contrast, Main Street is a least popular travel route into and out of the City for work trips. During the AM and PM peak hour, about 4 percent and 6 percent of trips, respectively, utilize Main Street.

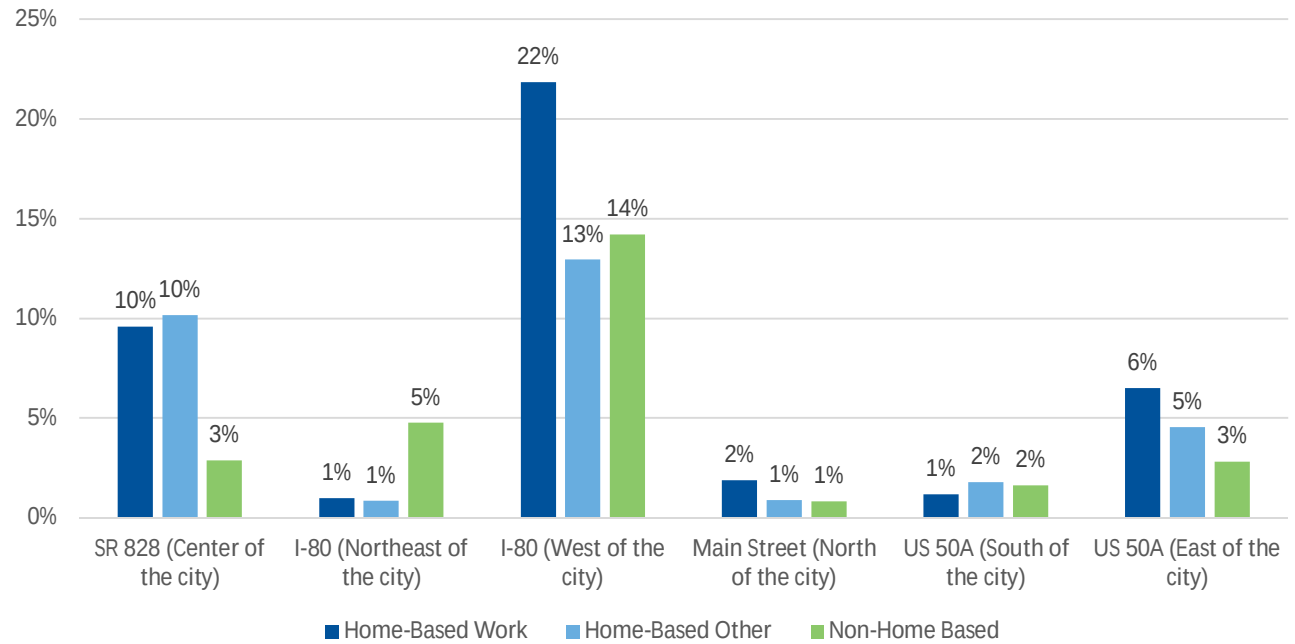
Below is a breakdown of the trip purpose for the preferred commuter route. The breakdown shows a high portion of trips being home based other and non-home based. This can account for pass-by trips such as those performed to complete daily activities and errands (e.g., dropping children off at school before work, picking up groceries before heading home).

AM Peak

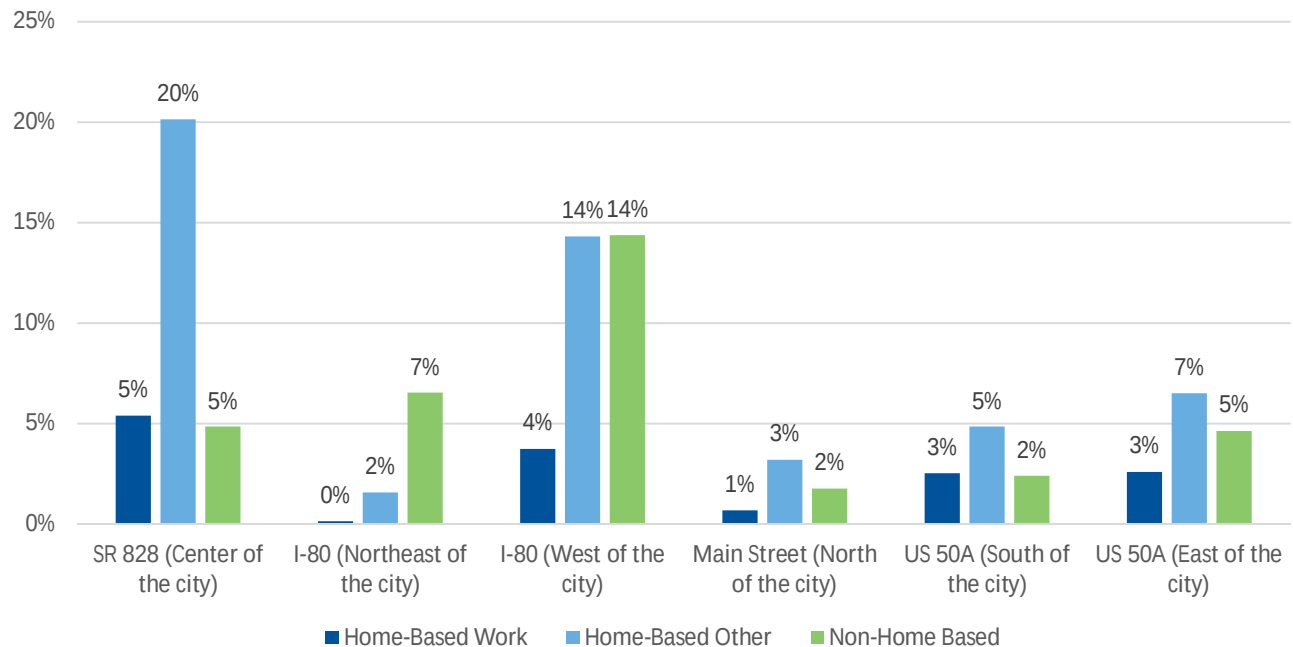
- HBW: 22%
- HBO: 13%
- NHB: 14%

PM Peak

- HBW: 4%
- HBO: 14%
- NHB: 14%



Percent of AM Peak Period Trips (6AM - 9AM) by Study Segment



Percent of PM Peak Period Trips (3PM - 7PM) by Study Segment

Preferred Routes for Commercial Vehicles

The table below shows the distribution of commercial vehicle trips for an average weekend and weekday. About 98 percent of commercial vehicle trips that enter Fernley using I-80 northeast of the city exit the city using I-80 west of the city. About 99 percent of commercial vehicle trips that enter Fernley using US 50A exit the City using I-80 west of the city.

From this information, it can be concluded that a majority of commercial vehicle trips exit the City using the I-80.

Percent of Commercial Truck Trips by Origin and Destination

Route Entering Fernley	Route Exiting Fernley					
	SR 828 (Center of the city)	I-80 (Northeast of the city)	I-80 (West of the city)	Main Street (North of the city)	US 50A (South of the city)	US 50A (East of the city)
SR 828 (Center of the city)		4%	57%	1%	13%	25%
I-80 (Northeast of the city)	0%		98%	0%	1%	0%
I-80 (West of the city)	1%	76%		0%	5%	19%
Main Street (North of the city)	4%	10%	58%		20%	12%
US 50A (South of the city)	5%	22%	76%	2%		1%
US 50A (East of the city)	1%	0%	99%	1%	0%	

The data helps inform that a majority of trips – both passenger vehicles and commercial trucks – utilize I-80, showing that I-80 is an important corridor for trip travel into and out of the City. It would be important that I-80 be reviewed for impacts of closures on this route since it would heavily impact the surrounding network. There may be a benefit in separating passenger trips and commercial trips with a by-pass route to help alleviate congestion.

APPENDIX F

PUBLIC ENGAGEMENT SUMMARY MEMORANDUM

PUBLIC ENGAGEMENT SUMMARY MEMO

1. INTRODUCTION

Public Involvement and Stakeholder engagement is a key component in the development of the City of Fernley's Transportation Master Plan (TMP). The public was able to provide their feedback through an online survey in questionnaire format and by mapping their transportation related ideas and comments on an online map. A pop-up meeting also educated the residents and community members at the Spooktacular community event on October 31, 2019. The event received over 2,500 visitors and many stopped by the pop-up booth.

The results of the online survey, mapping exercise, and pop-up event are summarized throughout this document and will be utilized in the development of recommendations for the Fernley TMP.

2. ONLINE SURVEY

A 10-question online survey was available online for input from October 3, 2019 to November 27, 2019. The survey gathered information from members of the public on current multimodal transportation system components and their priority and use within the community. The survey also asked for age, home zip code, and work zip code, to use for future analysis on commuting and demographics.

1.1. Multimodal Transportation Priorities

The first question in the survey asked survey respondents to rank the top three multimodal transportation system components for the City of Fernley. The six options for components were:

- Pedestrian facilities
- Parking availability
- Street landscaping
- Bicycle facilities
- Public transit (bus) service
- Roadways and intersections

Roadways and intersections were ranked the highest first and second most important element of multimodal transportation in the City of Fernley. Public transit (bus) service was ranked second highest among first and second most important elements. The third most important element was parking availability and was followed by pedestrian facilities. See **Figure 1**.

Which elements of a multimodal transportation system are most important?

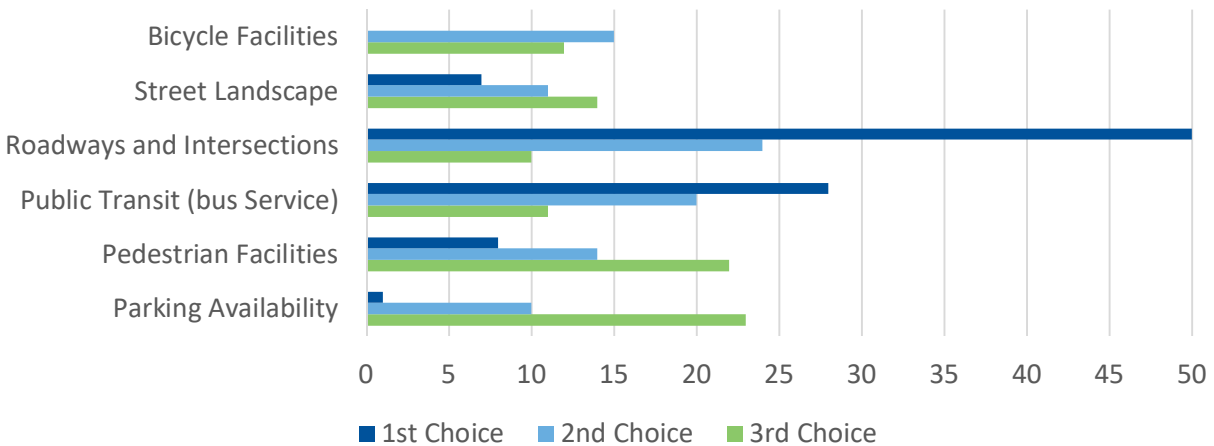


Figure 1 – Elements of Multimodal Transportation Systems

Therefore, the top three elements of multimodal transportation systems within the City of Fernley are (in order from highest to lowest):

- Roadways and Intersections
- Public transit (bus) service
- Parking availability

1.2. Typical Transportation Habits

The second question in the survey asked “how do you typically move in or around the city?” and gave the survey respondent five choices:

- Drive alone
- Drive with other (carpool)
- Bicycling
- Walking
- Other

Survey results indicated the majority of respondents drive alone or carpool; the combined driving methods accounted for 92% of all responses. Therefore, only 8% of respondents walk, bike, or use other alternative transportation modes. See **Figure 2**.

How do you typically move in or around the city?

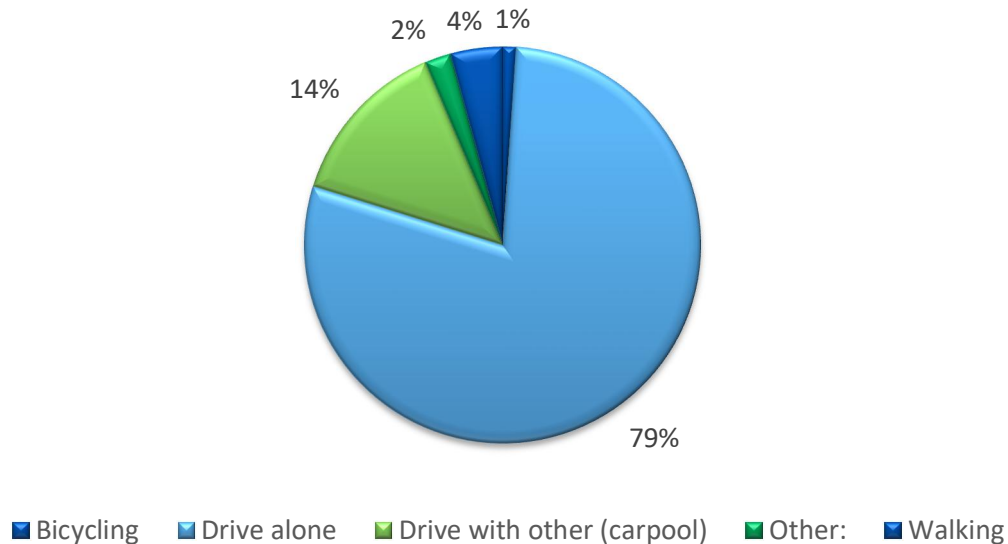


Figure 2 – Current Transportation Modes among Users

1.3. Walkability and Bikeability

1.3.1. Walkability

Question three on the survey asked “which would encourage you to walk around the city more?” with the following choices as answers:

- Add landscaping
- Add new sidewalks
- Improve intersection and roadway lighting
- Improve safety (traffic)
- Improve safety (crime)
- Improve sidewalk ramps
- Improve sidewalks

Respondents could choose up to three of the seven choices. Results indicated that adding new sidewalks and landscaping would encourage more walking within the community. Improved intersection and roadway lighting and improved safety (traffic) were also top considerations in walkability within the city. See **Figure 3**.

Which would encourage you to walk around the city more?

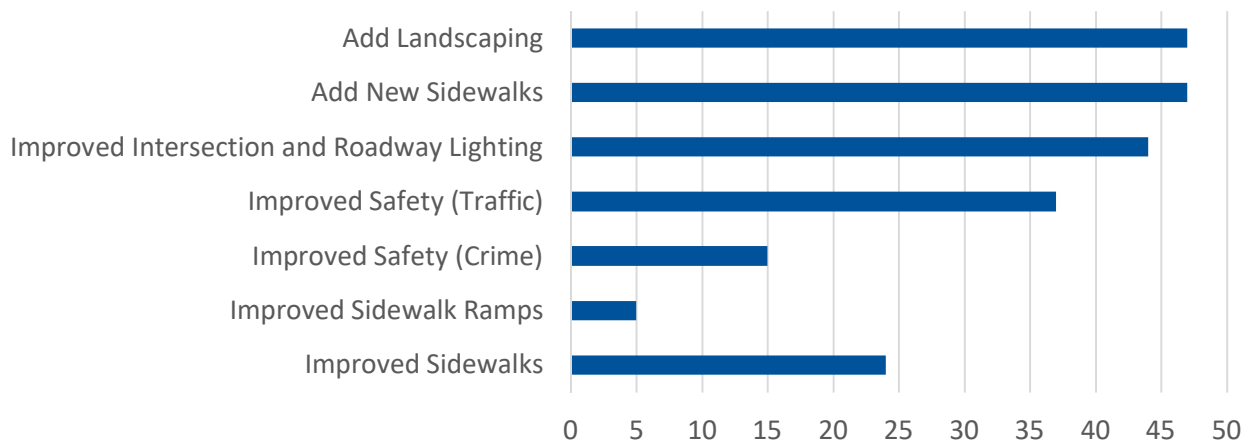


Figure 3 – Potential Walking Infrastructure

1.3.2. Bikeability

The fourth question asked survey takers “what would encourage you to bicycle around the city more?” with the following six choices to choose from:

- Improve maintenance on streets and bike lanes
- Add new bicycle facilities
- Improve existing bicycle facilities
- Improve intersection and roadway lighting
- Improve safety (traffic)
- Improve safety (crime)

Adding new bicycle facilities was the top response in the survey. Improving existing bicycle facilities, improving intersection and roadway lighting, and improving traffic safety were among other top components that would encourage more biking within the city. See **Figure 4**.

What would encourage you to bicycle around the city more?

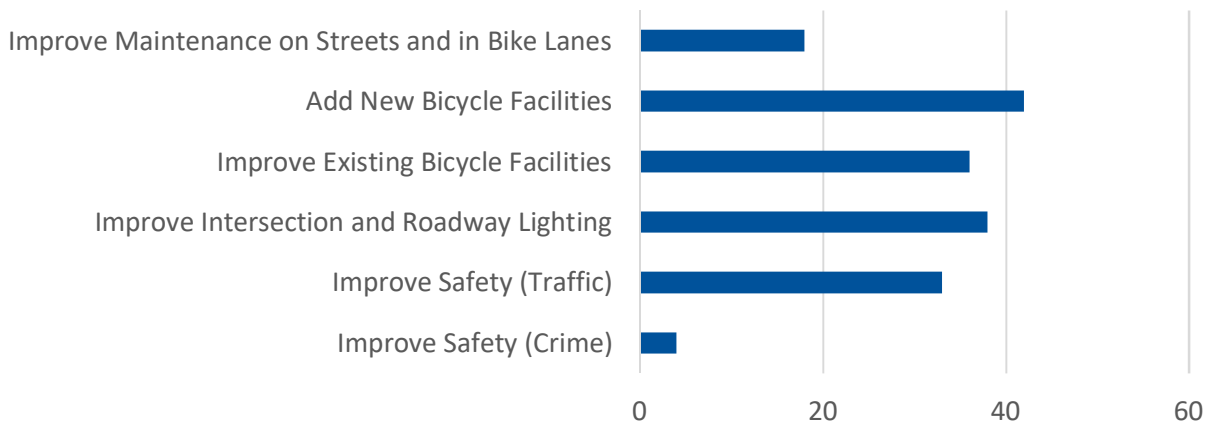


Figure 4 – Potential Bicycle Infrastructure

Adding new sidewalks and bicycle facilities were the top contributors to encourage more walking and bicycling within the city; improved intersection and roadway lighting were both the third most important component to encourage both walking and biking within the community. Therefore, recommendations should consider implementing bicycle and pedestrian facilities throughout the community along with improving the lighting along roadways and at intersections.

1.4. Driving and Carpooling

Question five asked “what would improve driving or increase carpooling to/from the City? (pick up to 2),” and gave respondents the following options to choose from:

- Add lanes to existing roads and intersections
- Make driving safer
- Improve/add parking
- Provide more carpooling opportunities
- No improvements needed
- Other

Survey results are displayed in **Figure 5** and indicated that the majority of people believe adding lanes to existing roads and intersection and providing more carpool options would improve driving and carpooling within Fernley. 35% of responses indicated additional lanes would improve driving and 20% of responses indicated more carpool options would improve driving in the city.

7% of responses indicated “other” as an answer choice and wrote in the following ideas to improve driving and carpooling:

- Find a way to bypass traffic around the city to reduce the through traffic in neighborhoods
- Parking in old downtown
- Stop light near Fox Peak
- Add more reliable transportation services
- More policing on invasive drivers
- Fernley infrastructure is not big enough for all people and vehicles already here. And there’s more to come
- Another bridge over the tracks for those of us not headed to Fallon
- Fix the streets
- Provide park and ride locations (basically a parking lot)

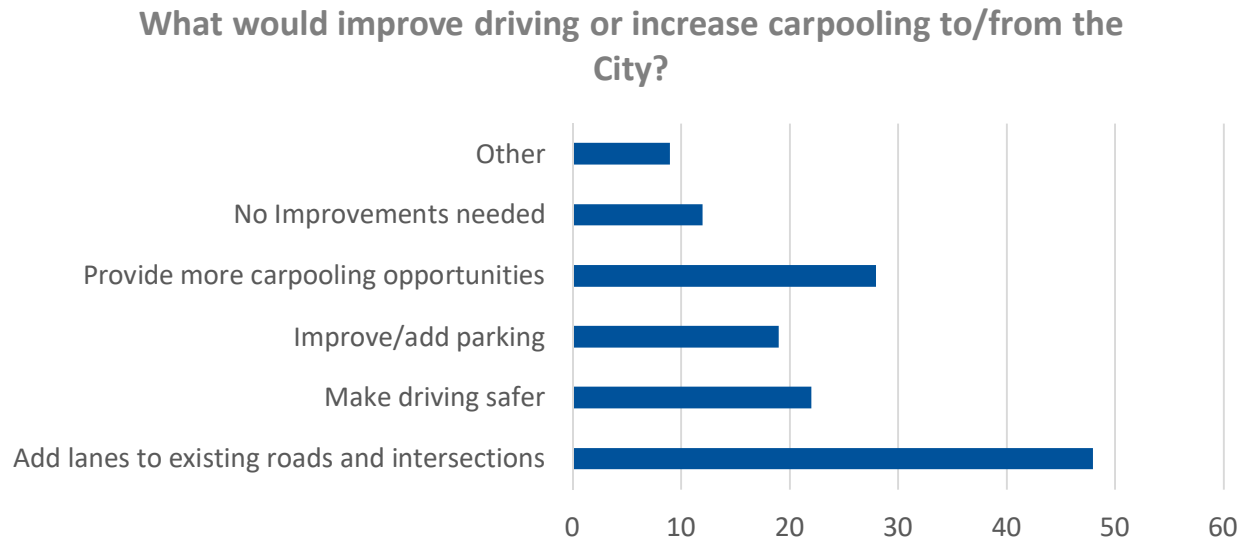


Figure 5 – Potential Vehicle Infrastructure

1.5. Other Suggestions

Question six asked “what other suggestions do you have to improve transportation mobility and safety in the City of Fernley?” A text box was provided for respondents to type in their suggestions. The following trends were observed within the results of the responses

- Intersections and Roads:
 - Cottonwood and 95A
 - Farm District Road
 - Main Street
 - Roundabout at Main Street and Farm District Road
 - Fox Peak
 - Pioneer
- Infrastructure and Facilities
 - Bike Lanes
 - Sidewalks
 - Streetlights
 - Public Transportation
 - Bus Service
- Other
 - Police presence

1.6. Transportation Network Companies

Question seven asked “Have you used a Transportation Network Company (TNC – Uber, Lyft, etc.) in the City?” and asked the subsequent question, “If Yes – how frequently?” to anyone who responded yes. Survey results indicated that 79% of respondents have not used a transportation

network company within the city. Of those that responded yes, 53% used the transportation network company less than once a month, 31% used it once a month, and 16% used it more than once a month. Therefore, of the 95 responses received, only 3% use a Transportation Network Company more than once a month. See **Figure 6** and **Figure 7**.

HAVE YOU USED A TRANSPORTATION NETWORK COMPANY (TNC - UBER, LYFT, ETC.) IN THE CITY?

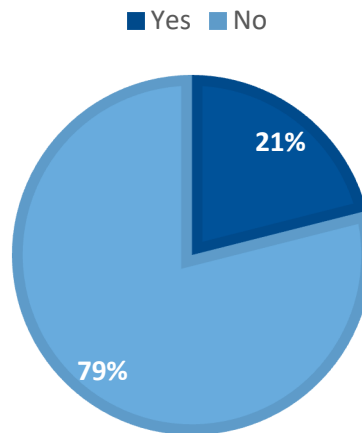


Figure 6 – Transportation Network Company Use

IF YES -- HOW FREQUENTLY?

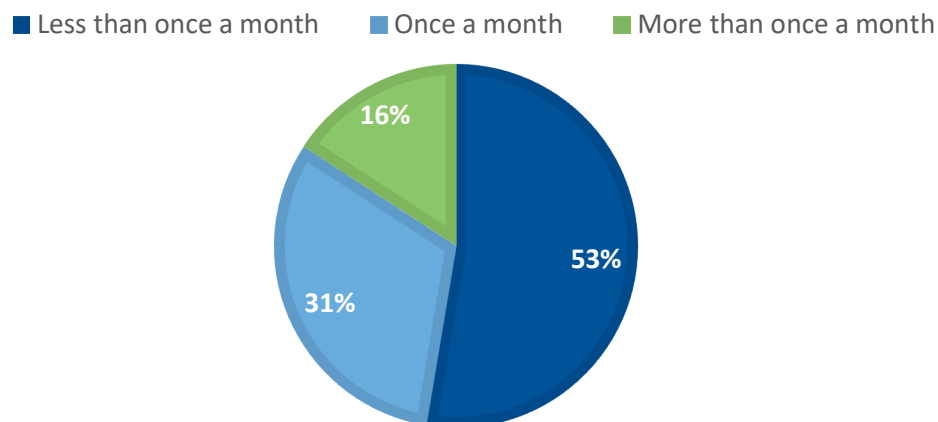


Figure 7 – Transportation Network Company Frequency of Use

1.7. Demographics

The last three questions of the survey collected information on age, work location, and home location. This information was used to analyze the habits of generations and the travel commutes between home and work for the respondents. The final questions are listed below:

- What is your home zip code?
- What is your work zip code?
- Age
 - <18
 - 18-24
 - 25-40
 - 41-55
 - 56-65
 - >65

The majority of survey respondents were from the 89408 zip code; 61% of those living in zip code 89408 also worked in the zip code 89408, eight percent worked in 89434, six percent worked in 89502, and five percent worked in 89431. The remaining 20% of respondents worked in eleven different zip codes in the region.

Survey responses were primarily received from those aged 24 to 65. The age ranges 25-40 and 56-65 both had 27 responses. However, the age range from 25-40 is more broad than the age range of 56-65; therefore, 56-65 year-olds were the most represented age group in the survey results. Recommendations should take the aging population into consideration for the future transportation needs of the city. See **Figure 8**.

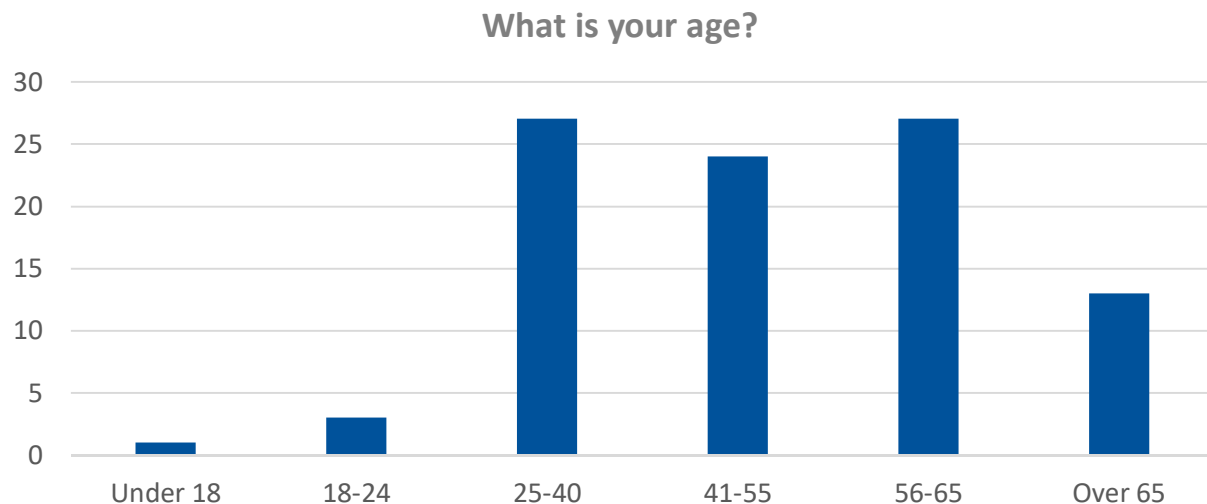


Figure 8 – Survey Respondent Age Distribution

3. ONLINE MAP COMMENTS

An interactive online map was used as a resource to gather locations of needed multimodal transportation components within the city. Users were able to choose to draw a line or drop a marker comment from nine different categories and then map their concern with a comment. The nine categories were:

- Line Comments
 - Roadway
 - Bicycle Route
 - Walking Route
- Marker Comments
 - Intersection
 - Vehicle
 - Bicycle
 - Pedestrian
 - Safety
 - Other

Of the 192 comments received, the three most commented on categories were roadway (33%), intersection (18%), and safety (18%) as shown in **Figure 9**. The comments were used to generate a heat map that illustrates several focus areas throughout the city. These comments will be reviewed and considered during development of recommendations as part of the TMP. The heat map is displayed in **Figure 10**. Results indicate that the following areas are in need of improvements.

- The roundabout at 95A and Main Street and the US 95A corridor
- The intersection of Cottonwood Avenue and US 95A

How do you typically move in or around the city?

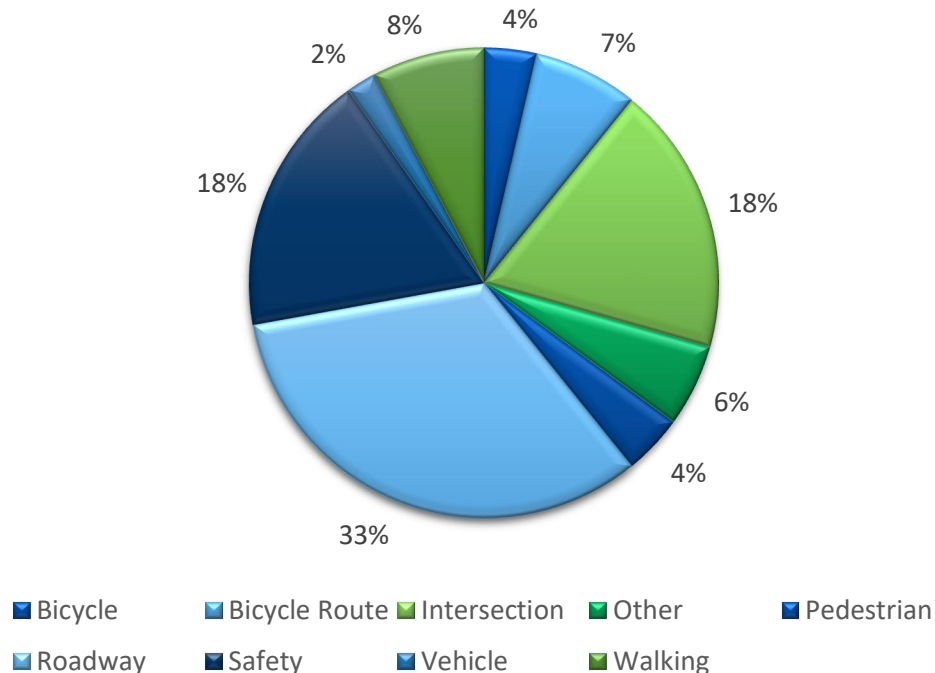


Figure 9 – Comment Category Distribution

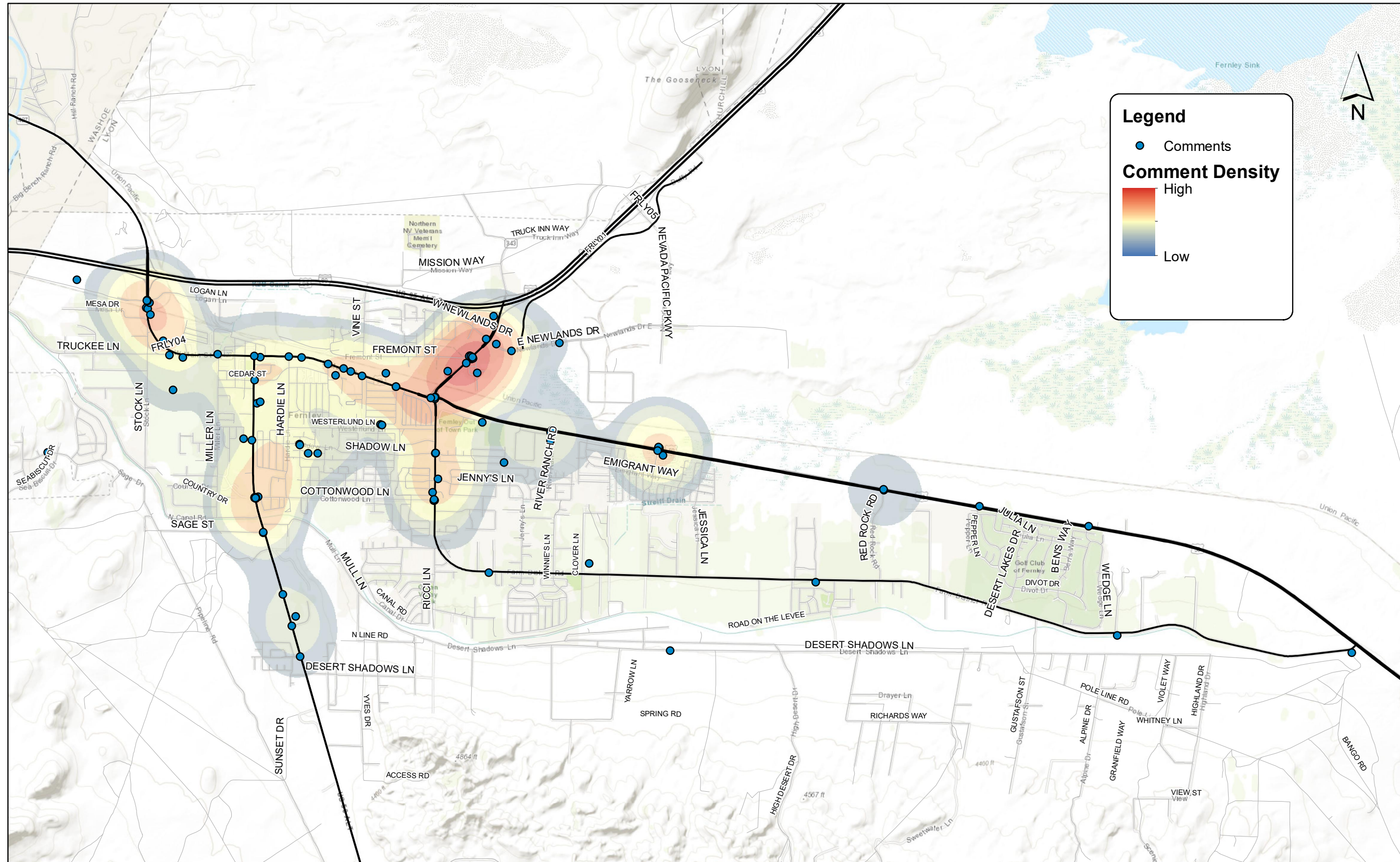


Figure 10 – Public Comment Location Density

APPENDIX G

ROADWAY CORRIDOR CAPACITY ANALYSIS

Roadway	Roadway Type	NDOT Station ID	NDOT 2018 AADT	Speed Limit (mph)	Minimum LOS
US 95A/US 50A	2 lane undivided	190022	7600	25	D
US 50A	3 lane with TWLTL	190023	11600	35	D
Main Street	2 lane undivided	190024	10400	25	D
Main Street	2 lane undivided	190025	9100	35	D
Newlands Dr	5 lane with TWLTL	190027	1550	35	C
US 50A/Main St	3 lane with TWLTL	190032	11000	35	C
Farm District Road (SR 828)	3 lane with TWLTL	190033	10300	35	C
US 50A	4 lane divided	190034	12700	50	C
Farm District Road (SR 828)	2 lane undivided	190035	560	45	C
US 95A	4 lane divided	190036	32500	35	F
Salvadore Lane	2 lane undivided	190038	190	25	C
Ricci Lane	2 lane undivided	190043	560	25	C
Reese River Road	2 lane undivided	190046	470	25	C
Sage Street	2 lane undivided	190050	940	25	C
Red Rock Rd	2 lane undivided	190057	260	25	C
Cottonwood Lane	2 lane undivided	190060	4650	35	C
Desert Lakes Drive	2 lane divided	190068	270	25	C
Hardie Lane	2 lane undivided	190119	1000	25	C
Truckee Ln/Old Highway 40	2 lane undivided	190127	610	25	C
Vine Street	2 lane undivided	190134	230	25	C
Mission Way	2 lane undivided	190135	420	25	C
Canal Road	2 lane undivided	190137	360	25	C
Jenny's Lane	2 lane undivided	190139	690	25	C

**Generalized Annual Average Daily Volumes for Florida's
Transitioning Areas and
Areas Over 5,000 Not In Urbanized Areas¹**

12/18/12

TABLE 2

INTERRUPTED FLOW FACILITIES					
STATE SIGNALIZED ARTERIALS					
Class I (40 mph or higher posted speed limit)					
Lanes	Median	B	C	D	E
2	Undivided	*	14,400	16,200	**
4	Divided	*	34,000	35,500	**
6	Divided	*	52,100	53,500	**
Class II (35 mph or slower posted speed limit)					
Lanes	Median	B	C	D	E
2	Undivided	*	6,500	13,300	14,200
4	Divided	*	9,900	28,800	31,600
6	Divided	*	16,000	44,900	47,600
Non-State Signalized Roadway Adjustments					
(Alter corresponding state volumes by the indicated percent.)					
Non-State Signalized Roadways - 10%					
Median & Turn Lane Adjustments					
Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors	
2	Divided	Yes	No	+5%	
2	Undivided	No	No	-20%	
Multi	Undivided	Yes	No	-5%	
Multi	Undivided	No	No	-25%	
-	-	-	Yes	+ 5%	
One-Way Facility Adjustment					
Multiply the corresponding two-directional volumes in this table by 0.6					

UNINTERRUPTED FLOW FACILITIES					
FREEWAYS					
Lanes	B	C	D	E	
4	44,100	57,600	68,900	71,700	
6	65,100	85,600	102,200	111,000	
8	85,100	113,700	135,200	150,000	
10	106,200	141,700	168,800	189,000	
Freeway Adjustments					
Auxiliary Lanes Present in Both Directions + 20,000			Ramp Metering + 5%		

UNINTERRUPTED FLOW HIGHWAYS					
Lanes	Median	B	C	D	E
2	Undivided	9,200	17,300	24,400	33,300
4	Divided	35,300	49,600	62,900	69,600
6	Divided	52,800	74,500	94,300	104,500
Uninterrupted Flow Highway Adjustments					
Lanes	Median	Exclusive left lanes	Adjustment factors		
2	Divided	Yes	+5%		
Multi	Undivided	Yes	-5%		
Multi	Undivided	No	-25%		

BICYCLE MODE ²				
(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)				
Paved Shoulder/Bicycle Lane Coverage				
	B	C	D	E
0-49%	*	2,600	6,100	19,500
50-84%	1,900	5,500	18,400	>19,500
85-100%	7,500	19,500	>19,500	**
PEDESTRIAN MODE ²				
(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)				
Sidewalk Coverage	B	C	D	E
0-49%	*	*	2,800	9,400
50-84%	*	1,600	8,600	15,600
85-100%	3,800	10,500	17,100	>19,500
BUS MODE (Scheduled Fixed Route) ³				
(Buses in peak hour in peak direction)				
Sidewalk Coverage	B	C	D	E
0-84%	> 5	≥ 4	≥ 3	≥ 2
85-100%	> 4	≥ 3	≥ 2	≥ 1

¹ Values shown are presented as two-way annual average daily volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual and the Transit Capacity and Quality of Service Manual.	
² Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicyclists or pedestrians using the facility.	
³ Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.	
* Cannot be achieved using table input value defaults.	
** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.	
Source: Florida Department of Transportation Systems Planning Office www.dot.state.fl.us/planning/systems/sm/los/default.shtm	

Source:
Florida Department of Transportation
Systems Planning Office
www.dot.state.fl.us/planning/systems/sm/los/default.shtml

TABLE 2
(continued)

Generalized **Annual Average Daily** Volumes for Florida's
Transitioning and
Areas Over 5,000 Not In Urbanized Areas

12/18/12

INPUT VALUE ASSUMPTIONS	Uninterrupted Flow Facilities			Interrupted Flow Facilities					
				State Arterials				Class I	
	Freeways	Highways		Class I		Class II		Bicycle	Pedestrian
ROADWAY CHARACTERISTICS									
Area type (t,uo)	t	t	t	t	t	t	t	t	t
Number of through lanes (both dir.)	4-10	2	4-6	2	4-6	2	4-6	4	4
Posted speed (mph)	70	50	50	45	50	30	30	45	45
Free flow speed (mph)	75	55	55	50	55	35	35	50	50
Auxiliary lanes (n,y)	n	n	n						
Median (n, nr, r)		n	r	n	y	n	y	r	r
Terrain (l,r)	l	l	l	l	l	l	l	l	l
% no passing zone		60							
Exclusive left turn lane impact (n, y)		[n]	y	y	y	y	y	y	y
Exclusive right turn lanes (n, y)				n	n	n	n	n	n
Facility length (mi)	8	5	5	1.8	2	2	2	2	2
Number of basic segments	4								
TRAFFIC CHARACTERISTICS									
Planning analysis hour factor (K)	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
Directional distribution factor (D)	0.555	0.550	0.550	0.550	0.570	0.570	0.565	0.570	0.570
Peak hour factor (PHF)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Base saturation flow rate (pcphpl)		1,700	2,100	1,950	1,950	1,950	1,950	1,950	1,950
Heavy vehicle percent	9.0	4.0	4.0	2.0	3.0	2.0	3.0	3.0	3.0
Local adjustment factor	0.85	0.97	0.95						
% left turns				12	12	12	12	12	12
% right turns				12	12	12	12	12	12
CONTROL CHARACTERISTICS									
Number of signals				5	4	10	10	4	6
Arrival type (1-6)				4	3	4	4	4	4
Signal type (a, c, p)				c	c	c	c	c	c
Cycle length (C)				120	150	120	150	120	120
Effective green ratio (g/C)				0.44	0.45	0.44	0.45	0.44	0.44
MULTIMODAL CHARACTERISTICS									
Paved shoulder/bicycle lane (n, y)								n, 50%, y	n
Outside lane width (n, t, w)								t	t
Pavement condition (d, t, u)								t	
On-street parking (n, y)								n	n
Sidewalk (n, y)									n, 50%, y
Sidewalk/roadway separation (a, t, w)									t
Sidewalk protective barrier (n, y)									n
LEVEL OF SERVICE THRESHOLDS									
Level of Service	Freeways	Highways		Arterials		Bicycle	Ped	Bus	
	Density	Two-Lane	Multilane	Class I	Class II	Score	Score	Buses/hr.	
		%ffs	Density	ats	ats				
B	≤ 17	> 83.3	≤ 17	> 31 mph	> 22 mph	≤ 2.75	≤ 2.75	≤ 6	
C	≤ 24	> 75.0	≤ 24	> 23 mph	> 17 mph	≤ 3.50	≤ 3.50	≤ 4	
D	≤ 31	> 66.7	≤ 31	> 18 mph	> 13 mph	≤ 4.25	≤ 4.25	< 3	
E	≤ 39	> 58.3	≤ 35	> 15 mph	> 10 mph	≤ 5.00	≤ 5.00	< 2	

% ffs = Percent free flow speed ats = Average travel speed

Roadway	Facility	# of Lanes	NDOT 2018 AADT	LOS D Max Daily Trips	Speed Limit (mph)	Estimated LOS
US 95A/US 50A	Arterial	2	7600	16200	25	D or better
US 50A	Arterial	2	11600	16200	35	D or better
Main Street	Arterial	2	10400	16200	25	D or better
Main Street	Arterial	2	9100	16200	35	D or better
Newlands Dr	Arterial	4	1550	32400	35	D or better
US 50A/Main St	Arterial	2	11000	16200	35	D or better
Farm District Road (SR 828)	Arterial	2	10300	16200	35	D or better
US 50A	Arterial	4	12700	36000	50	D or better
Farm District Road (SR 828)	Arterial	2	560	18000	45	D or better
US 95A	Arterial	4	32500	32400	35	E
Salvadore Drive	Local Street	2	190	4500	25	D or better
Ricci Lane	Minor Collector	2	560	7875	25	D or better
Reese River Road	Local Street	2	470	4500	25	D or better
Sage Street	Minor Collector	2	940	7875	25	D or better
Red Rock Rd	Minor Collector	2	260	7875	25	D or better
Cottonwood Lane	Minor Collector	2	4650	7875	35	D or better
Desert Lakes Drive	Minor Collector	2	270	7875	25	D or better
Hardie Lane	Minor Collector	2	1000	7875	25	D or better
Truckee Ln/Old Highway 40	Minor Collector	2	610	7875	25	D or better
Vine Street	Minor Collector	2	230	7875	25	D or better
Mission Way	Minor Collector	2	420	7875	25	D or better
Canal Road	Local Street	2	360	4500	25	D or better
Jenny's Lane	Minor Collector	2	690	7875	25	D or better

Analysis per 2018 City of Fernley Comprehensive Master Plan

TABLE 4-1
VOLUME TO CAPACITY RATIOS AND LEVEL OF SERVICE DESCRIPTIONS

V/C Ratio	Level of Service	Description
0.00 – 0.59	A	Free flow, low volumes, high speed
0.60 – 0.69	B	Stable flow, lower operating speeds
0.70 – 0.79	C	Stable flow, higher volumes
0.80 – 0.89	D	Approaching unstable, restrictions to operating flows
0.90 – 0.99	E	Unstable flow, near capacity
1.00	F	Forced flow, at capacity

The Regional Transportation Commission of Washoe County has developed a planning-level standard for equating daily traffic volume to LOS D based upon a facility's classification and the number of lanes provided. Since numerous factors influence the operation and capacity of a roadway segment, the information is provided as a general guideline to be used for planning purposes only. The thresholds identified in Table 4-2 below are useful in conducting informal assessments of the operational capacity of a roadway within the system. The City of Fernley has adopted the standard LOS of D as the minimum acceptable LOS for the city's roadways.

TABLE 4-2
LEVEL OF SERVICE THRESHOLDS BY ROADWAY TYPE

Facility	No. of Lanes	Level of Service D Maximum Daily Trips
Arterial	2	13,500 ¹ / 16,200 ² / 18,000 ³
	4	27,000 ¹ / 32,400 ² / 36,000 ³
	6	40,500 ¹ / 48,600 ² / 54,000 ³
Major Collector	2	12,600
	4	25,200
Minor Collector	2	7,875
Local Street	2	4,500

Source: Regional Transportation Commission of Washoe County.

1 Low Access Control Arterial, 25-35 mph

2 Moderate Access Control Arterial 35-45 mph

3 High Access Control Arterial, 45-55 mph

APPENDIX H

BICYCLE LEVEL OF STRESS ANALYSIS RESULTS

Bicycle Level of Traffic Stress Evaluation

This section describes the bicycle assessment, key issues, recommendations, and strategies for improvement of bicycle facilities in the City.

Assessment

The Mineta Transportation Institute published a *Low-Stress Bicycling and Network Connectivity Analysis (2012)* report, which established a methodology for evaluating cyclist stress based on roadway facilities. Roadways are ranked from level of traffic stress (LTS) 1 (lowest stress) to LTS 4 (highest stress). In addition, the methodology classifies cyclists into four types. The following table defines the LTS levels in terms of facility types and suitable rider types.

Level of Traffic Stress

Level of Traffic Stress	Facility Type	Suitable Rider Type
LTS 1	Low traffic stress demands little attention. Suitable for almost all cyclists.	"Interested but Concerned" - Adults and Children
LTS 2	Some traffic stress demands more attention. Suitable for most adult cyclists.	"Interested but Concerned" - Adults Only
LTS 3	Increased traffic stress. Not comfortable to all adult cyclists.	"Enthusiased and Confident" - Adults Only
LTS 4	Highest traffic stress. Only used by experienced cyclists.	"Strong and Fearless" - Adults Only

The following criteria are used to establish the LTS ranking:

- Roadway classifications
- Roadway speeds (posted)
- Bicycle facility type
- Bike lane widths
- Parking lane width

Per the methodology guidance, the roadway is assigned a score between LTS 1 and LTS 4 based on the criteria shown in the following three tables. Where a table cell shows a result of "(no effect)", the resulting LTS for that situation is equal to the lower adjacent LTS. The LTS assigned to a location reflects the lowest score of applicable criteria. For example, if a segment street width matches criteria for LTS 1, its prevailing speed matches LTS 2, and its bike lane blockage matches LTS 3, then the segment as a whole is assigned LTS 3.

While LTS is traditionally calculated per each roadway direction, existing roadway and on-street bicycle facilities in the City do not vary depending on the roadway direction. For this TMP, the LTS was evaluated for each bi-directional roadway segment.

Data on roadway classifications, speeds, bicycle facility type, and intersection control were compiled using field observations. This information was supplemented with measurement estimates and documentation of bike lane configurations at intersections taken from aerial imagery.

Criteria for Bike Lanes Alongside a Parking Lane

	LTS ≥ 1	LTS ≥ 2	LTS ≥ 3	LTS ≥ 4
Street width * (through lanes per direction)	1	(no effect)	2 or more	(no effect)
Sum of bike lane and parking lane width	15 ft. or more	14 or 14.5 ft. *	13.5 ft. or less	(no effect)
Speed limit of prevailing speed	25 mph or less	30 mph	35 mph	40 mph
Bike lane blockage (typically applies in commercial areas)	Rare	(no effect)	Frequent	(no effect)

Note: (no effect) = factor does not trigger an increase to this level of traffic stress

* If speed limit < 25 mph or Class = residential, then any width is acceptable for LTS≥2

Criteria for Bike Lanes NOT Alongside a Parking Lane

	LTS ≥ 1	LTS ≥ 2	LTS ≥ 3	LTS ≥ 4
Street width (through lanes per direction)	1	(no effect)	2 or more	(no effect)
Bike lane width (includes marked buffer and paved gutter)	6 ft. or more	5.5 ft. or less	(no effect)	(no effect)
Speed limit or prevailing speed	30 mph or less	(no effect)	35 mph	40 mph or more
Bike lane blockage (may apply in commercial areas)	Rare	(no effect)	Frequent	(no effect)

Note: (no effect) = factor does not trigger an increase to this level of traffic stress

Criteria of Level of Traffic Stress in Mixed Traffic

Speed Limit	Street Width		
	2 - 3 Lanes	4 - 5 Lanes	6+ Lanes
Up to 25 mph	LTS 1* or 2*	LTS 3	LTS 4
30 mph	LTS 2* or 3*	LTS 4	LTS 4
35 + mph	LTS 4	LTS 4	LTS 4

**Use lower value for streets without marked centerlines or classified as residential with fewer than 3 lanes; use higher values otherwise*

Key Issues

The results of the LTS evaluation are shown in **Figure 11** and illustrate barriers to bicycle connectivity throughout the City. Note that I-80 is not included in the analysis since state statute prohibits bicyclists on I-80 through the City of Fernley (from Exit 43 - Wadsworth to Exit 48 - Fernley). Main Street (US 50A), US 95A, and Farm District Road are high stress barriers to bicyclists in Fernley.

US 95A currently presents a barrier between Fernley High School and neighborhoods directly to the west, as well as the City's main residential areas to the north. The project to construct an off-street multi-use path along US95A from Main Street to south of the High School will provide a low-stress multimodal option.

Farm District Road provides direct east-west access through the residential area and access to Main Street. However, it's LTS 4 condition deters cyclists from using this main thoroughfare. Farm District Road presents a barrier between Silverland Middle School and neighborhoods to the south although the existing multi-use path from Main Street to Crimson Road provides a low-stress off-street alternative and the planned extension from Crimson Road to Jasmine Road (and Silverland Middle School) will enhance the multimodal facility options. It is recommended that the multi-use path be further extended the length of Farm District Road to US 50A, which would provide an LTS 1 off-street facility.

Newlands Drive and segments of US 50A both provide LTS 4 for bicycle riders.

I-80 is a barrier to cyclists accessing north Fernley. Main Street (LTS 3) provides a crossing, though cyclists must navigate the narrow railroad underpass (the "mouse hole") and may be wary of navigating the interchange.

East Newlands Drive (LTS 4) reduces bicycle mobility between the commercial area at the intersection of US 95A and the industrial area at Lyon Drive, as well as the future Nevada Pacific Parkway extension to US 50A.

The LTS analysis does not account for road surface conditions. Cyclists generally prefer paved roads to unpaved roads, which can be less comfortable/navigable and can increase wear and tear on the bike. Desert Shadows Lane/Mull Lane, which has LTS 1, appears to provide a low-stress east-west connection through southeast Fernley; however, the road is not paved, or well-maintained and is therefore not ideal for cyclists in its existing condition.

Recommendations and Strategies

Truckee Canal Multi-Use Path

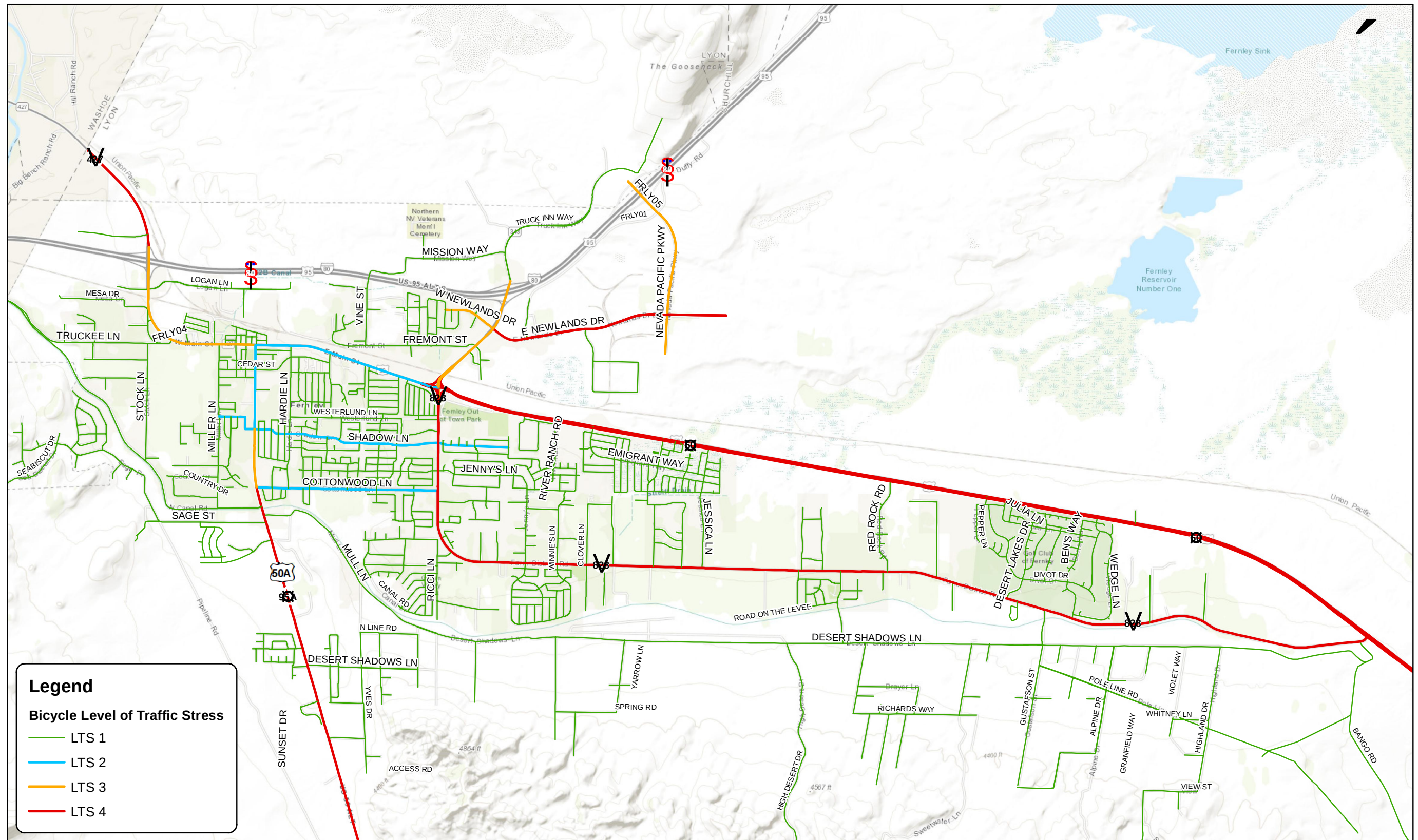
Main Street (US 50A) and Farm District Road provide the main east-west connections in Fernley. Each roadway is classified as a LTS 4 facility for some segments. The Truckee Canal runs parallel to these routes and is an opportunity for a multi-use path adjacent to the canal. This path would connect the major residential areas of Fernley and remove the need to make Desert Shadows Road bike friendly. The multi-use path would serve multiple modes of transportation including bicycles, pedestrians, and potentially equestrian. This path was also identified in the 2017 Fernley Parks Master Plan as a potential trail, but it should be noted while it may be possible to acquire the land to construct a multi-use path, the City would only be the underlying fee owner and the United States Bureau of Reclamation (USBR) would still be required to execute a consent document. Typically, USBR cannot relinquish ownership of required easements within the proposed vicinity of a path. The City would need to coordinate with USBR on any potential path along the Truckee Canal.

Roadway Improvements

In concurrence with the 2016 Lyon County Bicycle Plan, separated bicycle lanes and multi-use paths should be considered for roadways with the highest level of bicycle stress in the City: US 95A, US 50A, Newlands Drive and Farm District Road. The planned/programmed multi-use paths along US 95A and Farm District Road are recommended to be extended for additional multimodal connectivity. The existing and proposed bicycle and multi-use facilities, including those from the Lyon County Bicycle Plan were included as **Figure 11** of the main body of the report.

Intersection Improvements

Additional bicycle and pedestrian-friendly crossings should be created across US 95A, Main Street (US 50A) and Farm District Road, to access the existing and proposed multi-use paths, particularly in the vicinities of Silverland Middle School and Fernley High School. In addition, any extension of Nevada Pacific Parkway should take bicycle accessibility into account at the intersection with US 50A.



Bicycle Level of Traffic Stress Analysis

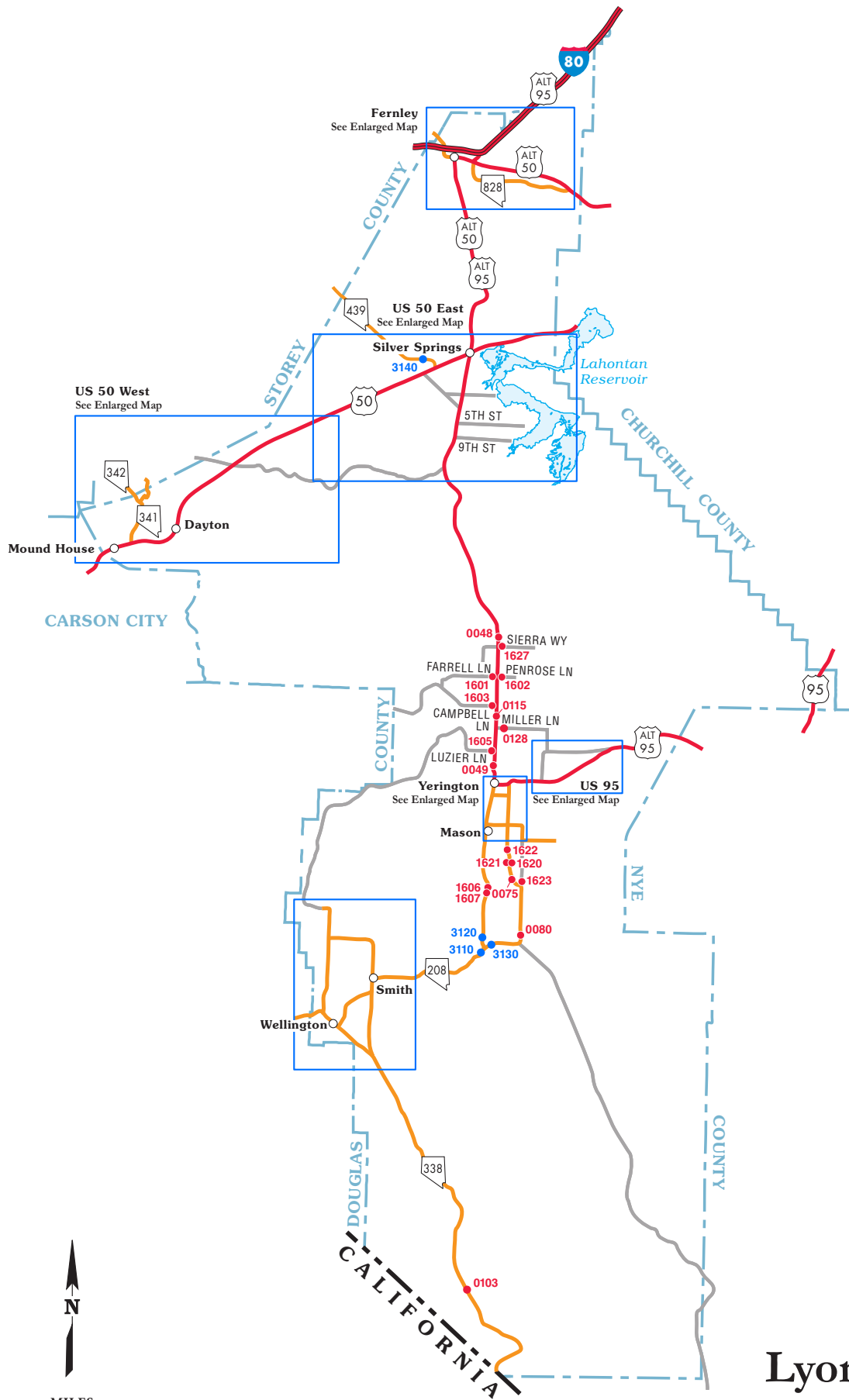
Bicycle Level of Traffic Stress Results

Route Name	Direction	Speed Limit	Through Lanes	Bike Lane Classification	Parking Lane	Bike Lane Blockage	Overall LTS	Limits
BEN'S WAY	NB	25 mph or less	1	N/A	No	(no effect)	LTS1	Farm District Road to Wedge Lane
COTTONWOOD LN	EB	35 mph	1	Class II	No	Rare	LTS2	50 to 828
CRIMSON RD	EB	25 mph or less	1	N/A	No	(no effect)	LTS1	Ricci to Canal
DESERT LAKES DR	NB	25 mph or less	1	N/A	No	(no effect)	LTS1	828 to Poppy Hills Drive
E NEWLANDS DR	EB	35 mph	2 or more	N/A	No	(no effect)	LTS4	SR 343 to Nevada Pacific Parkway
E NEWLANDS DR	EB	35 mph	2 or more	N/A	No	Rare	LTS3	80 to SR343
EMIGRANT WAY	EB	25 mph or less	1	N/A	No	(no effect)	LTS1	50A to St. Louis Rd
FREMONT ST	EB	25 mph or less	1	N/A	No	(no effect)	LTS1	Lily Rd to 95A
FRLY04	EB	25 mph or less	1	N/A	No	(no effect)	LTS1	Mesa to Truckee
FRLY05	NB	35 mph	2 or more	N/A	No	(no effect)	LTS 4	
GRANADA ST	NB	25 mph or less	1	N/A	No	(no effect)	LTS1	Fremont to Sandia
HARDIE LN	NB	25 mph or less	1	Class II	No	Rare	LTS1	Rachel to Cottonwood
JENNY'S LN	EB	25 mph or less	1	N/A	Yes	(no effect)	LTS1	Palomino to 828
JESSICA LN	NB	25 mph or less	1	N/A	No	(no effect)	LTS1	Tamsen to 828
JULIA LN	EB	25 mph or less	1	N/A	Yes	(no effect)	LTS1	Dog Leg to 50-A
Main Street	WB	35 mph	1	N/A	No	(no effect)	LTS3	US 95 A to I-80
MEADOWS AVE	EB	25 mph or less	1	N/A	No	(no effect)	LTS1	Spur Way to Brook Ln
MILLER LN	NB	25 mph or less	1	N/A	No	(no effect)	LTS1	N. Canal to Main St.
MISSION WAY	EB	25 mph or less	1	N/A	No	(no effect)	LTS1	Vine St to Truck Inn Way
NEVADA PACIFIC PKWY	NB	35 mph	1	Class II	No	Rare	LTS3	50A
RED ROCK RD	NB	25 mph or less	1	N/A	No	(no effect)	LTS1	828 to 50A
REESE RIVER RD	EB	25 mph or less	1	N/A	No	(no effect)	LTS1	N Jenny to Spur Way
RICCI LN	NB	25 mph or less	1	Class II	No	Rare	LTS1	Crimson to Dead End Ricci
RIVER RANCH RD	NB	25 mph or less	1	N/A	No	(no effect)	LTS1	Reese River Rd to 50A
SAGE DR EXTENSION	EB	25 mph or less	1	N/A	No	(no effect)	LTS1	95A to Sage St
SAGE ST	EB	25 mph or less	1	N/A	No	(no effect)	LTS1	Cable Canyon Dr to 95A
SANDIA DR	NB	25 mph or less	1	N/A	No	(no effect)	LTS1	Flint to Granada
SHADOW LN	EB	25 mph or less	1	N/A	No	(no effect)	LTS2	Wagon Wheel Ln to 95-A
SR427	WB	40 mph or more	1	N/A	No	(no effect)	LTS4	North of I-80
SR828E	EB	40 mph or more	1	N/A	No	Rare	LTS4	
SR828E	EB	35 mph	1	N/A	No	Rare	LTS4	
SR828W	WB	35 mph	1	Class II	No	Rare	LTS3	
STOCK LN	NB	25 mph or less	1	N/A	No	(no effect)	LTS1	N Canal to Truckee
TRUCK INN WAY	NB	25 mph or less	1	N/A	No	(no effect)	LTS1	I-80 to California Emigrant Trail
TRUCKEE LN	EB	25 mph or less	1	N/A	No	(no effect)	LTS1	W. Main St
US50AE	EB	40 mph or more	2 or more	N/A	No	(no effect)	LTS4	
US50AE	EB	25 mph or less	1	Class II	Yes	Frequent	LTS2	Main Street
US50AE	NB	25 mph or less	1	N/A	No	(no effect)	LTS2	
US50AE	NB	35 mph	1	N/A	No	(no effect)	LTS3	
US50AE	NB	40 mph or more	1	N/A	No	(no effect)	LTS4	
US50AE TO SR828E	NB	40 mph or more	1	N/A	No	(no effect)	LTS4	
US50AW	NB	40 mph or more	1	N/A	No	(no effect)	LTS4	
US50AW TO US95AN	NB	40 mph or more	1	N/A	No	(no effect)	LTS4	
US95AN	NB	35 mph	2 or more	Class II	No	Rare	LTS3	
US95AS	SB	35 mph	2 or more	Class II	No	Rare	LTS3	
US95AS TO US50AE WB	NB	40 mph or more	1	N/A	No	(no effect)	LTS4	
VINE ST	EB	25 mph or less	1	N/A	No	(no effect)	LTS1	I-80 to Fremont
W NEWLANDS DR	EB	35 mph	2 or more	Class II	Yes	Rare	LTS3	Sandia to 80
WEDGE LN	EB	25 mph or less	1	N/A	No	(no effect)	LTS1	50A to Ben's Way
WRANGLER LN	EB	25 mph or less	1	N/A	No	(no effect)	LTS1	Meadows to Wagon Wheel Lane

APPENDIX I

NDOT 2018 ANNUAL TRAFFIC REPORT EXCERPT





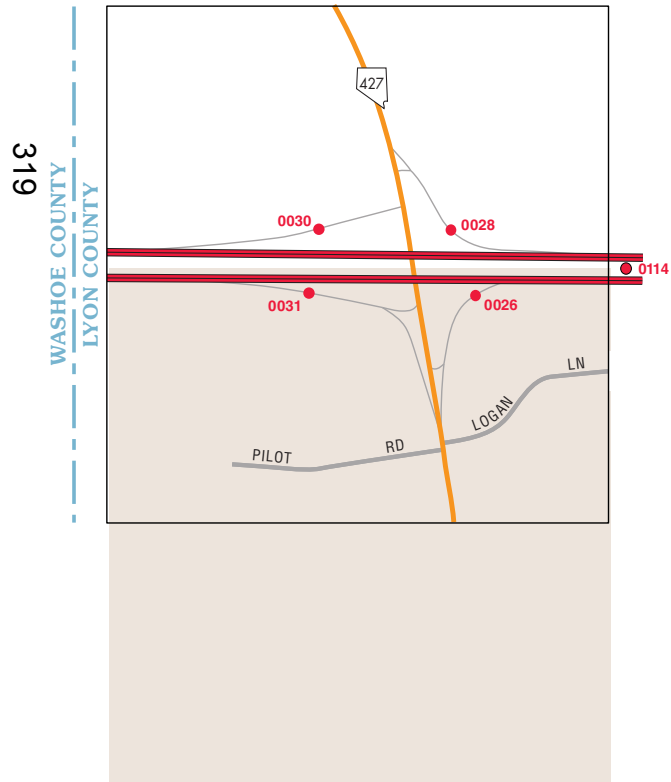
Lyon County

Lyon (019)

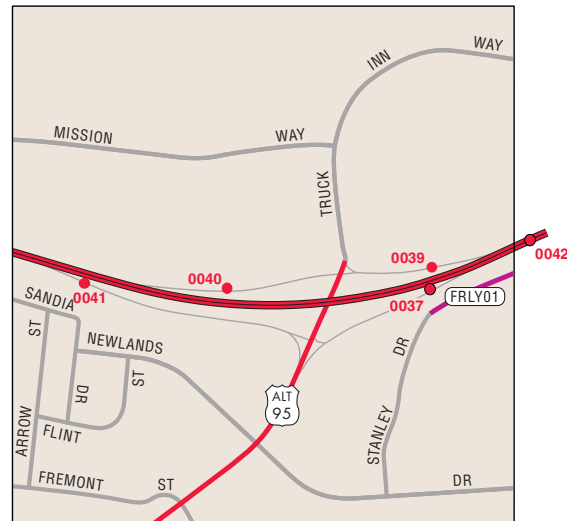
Interstate Interchanges

Lyon (019)

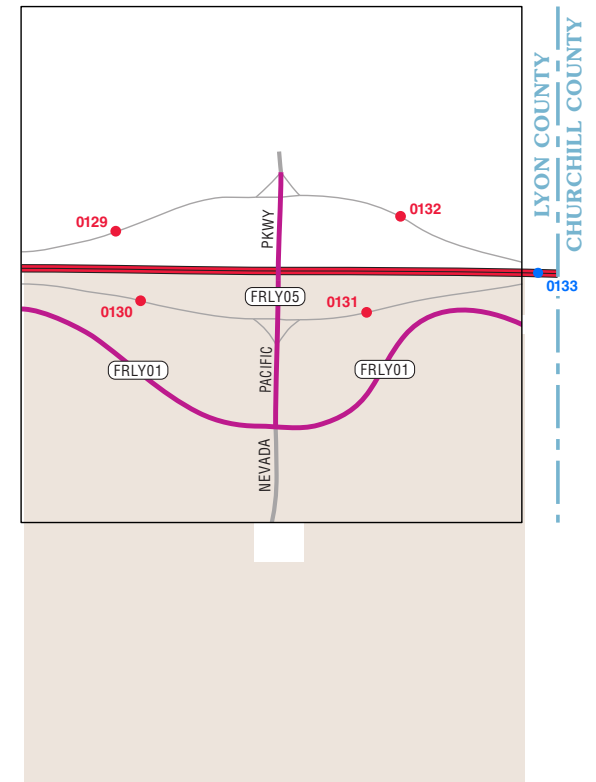
Wadsworth-Fernley 46

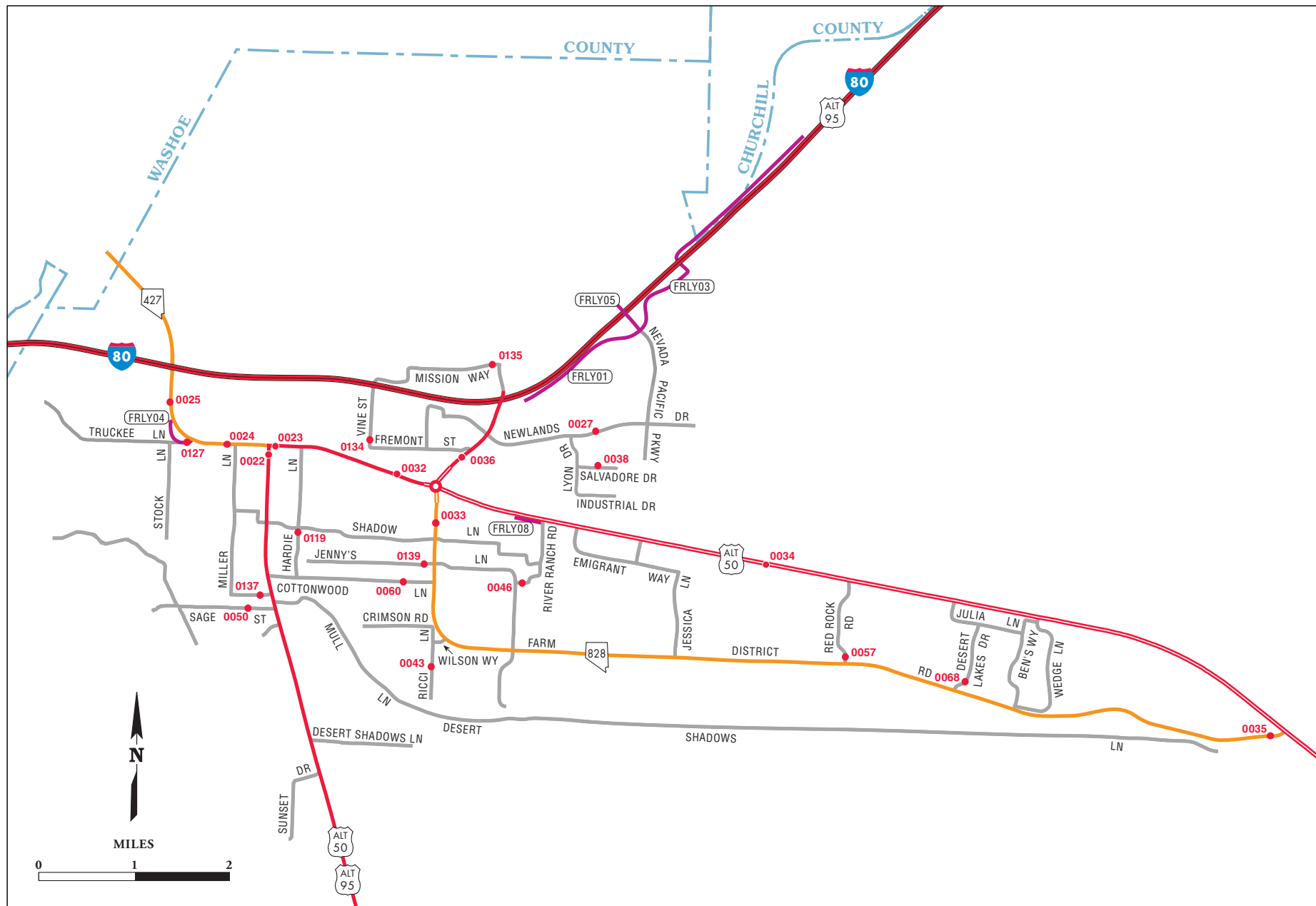


East Fernley 48



Nevada Pacific Pkwy 50





Fernley

Lyon (019)

State of Nevada Department of Transportation
Annual Average Daily Traffic Count Stations
County Name: LYON

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Station	Route/Location	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT
0190001	US50, .25 mi E of Kit Kat Dr	22000	22000	21000	23500	22500	22500	23500	25000	25000	25100
0190002	US50, 970ft E of SR341	19000	20000	19000	19000	18500	18500	20000	21000	22000	23400
0190003	SR341, 200ft N of US50	3500	3000	2900	2900	2700	2700	2900	3000	2700	2750
0190007	5th St, .23 mi E of Elm St at the RxR tracks	750	730	660	600	500	600	550	680	620	720
0190009	Pike St, 150ft N of Main St	560	580	460	400	400	400	400	460	430	450
0190010	Dayton Valley Rd, 720ft E of US50 in Dayton	9900	8800	10000	10500	10500	8700	8800	11000	11000	12500
0190012	US50, .2 mi W of the entrance to the Dayton State Park	20000	20000	18000	18500	18500	18000	19500	21000	21000	22800
0190013	US50, 300ft E of Ambrose Ln	14000	15000	14000	13500	14000	12500	15000	16000	16000	17400
0190014	Fort Churchill Rd, .3 mi E of Chaves Rd	140	140	140	150	150	150	150	160	160	170
0190015	Six Mile Canyon Rd, 340ft W of Riverboat Rd	2300	2500	2400	2000	2200	2100	2300	2400	2400	2750
0190016	US50, 460ft E of Chaves Rd	7100	7300	7500	7400	6300	6300	7200	7400	7700	8550
0190017	US50, 690ft E of Cheyenne Dr (in Stagecoach)	5500	5500	5200	4800	5100	5100	5700	6000	6100	6250
0190018	US50, .7 mi W of US95A in Silver Springs	4100	4200	4000	4200	3700	3800	3900	4400	4600	5150
0190019	US95A, US50A/US95A, 790ft S of US50	5300	4600	5100	5200	4700	4900	5200	5300	5900	5850
0190020	US50, .2 mi E of Orange Ln	1900	2000	1900	1900	1800	1900	2100	2100	2100	2650
0190021	US95A, US50A/US95A, 270ft N of US50	5300	5100	5000	4900	4500	4800	4900	5400	5500	4300
0190022	US95A, US50A/US95A, 320ft S of SR427 in Fernley	8800	8800	8900	8600	7500	7200	7500	8300	8400	7600
0190023	US95A, US50A/US95A, 250ft E of East St	11000	11000	9900	9700	9600	8900	9800	10000	10500	11600
0190024	SR427, Main St, 170ft W of Dallas Ln	10000	10000	9800	9300	9500	9200	9800	11000	11000	10400

Color indicates that the AADT value is estimated

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Station	Route/Location	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT
0190025	SR427, Main St, 400ft S of Pilot Rd	9300	9300	8700	8400	8600	8200	8600	9000	11000	9100
0190026	IR80, E/B on-ramp of the Wadsworth/W Fernley Intch 'Exit 46'	1700	1700	1700	2000	2000	2100	2100	2200	2200	2300
0190027	East Newlands Dr, 970ft E of Lyon Dr at the RxR crossing	1600	1600	1500	1500	1100	1100	1200	1200	1200	1550
0190028	IR80, W/B off-ramp of the Wadsworth/W Fernley Intch 'Exit 46'	1800	1800	1900	2000	2000	1900	1800	1800	2000	2150
0190029	Whitacre St, 170ft N of Commercial Ave	100	100	100	100	100	100	150	80	80	60
0190030	IR80, W/B on-ramp of the Wadsworth/W Fernley Intch 'Exit 46'	3900	3800	3600	3700	3700	3600	3800	4300	4500	3800
0190031	IR80, E/B off-ramp of the Wadsworth/W Fernley Intch 'Exit 46'	4100	4000	3700	3900	3900	4200	4300	4900	4400	4450
0190032	US95A, US50A/US95A, 140ft W of 7th St	14000	14000	11000	11000	10500	10500	10500	11000	11000	11000
0190033	SR828, Fernley Farm District Rd, .2 mi S of US50A	9400	10000	9500	8900	9200	9100	7800	7700	8300	10300
0190034	US50A, US50A/US95A, .65 mi E of Jessica Ln	11000	11000	9100	9000	11000	10500	11000	12000	12000	12700
0190035	SR828, Fernley Farm District Rd, 610ft W of US50A	500	560	490	450	500	450	500	500	540	560
0190036	US95A, US50A / US95A, to IR80 at the N end of guardrail of RxR overpass	26000	29000	25000	24500	25000	25500	28000	29000	28000	32500
0190037	IR80, E/B on-ramp of the E Fernley Intch 'Exit 48'	490	470	460	450	500	500	950	1000	1000	970
0190038	Salvador Dr, 805ft E of Lyon Dr at the RxR crossing	440	480	450	350	300	100	100	130	130	190
0190039	IR80, W/B off-ramp of the E Fernley Intch 'Exit 48'	520	420	410	550	550	1200	1300	1400	1200	1250
0190040	IR80, W/B on-ramp of the E Fernley Intch 'Exit 48'	6200	6200	6100	6300	6400	6500	6400	6600	8000	6300

Color indicates that the AADT value is estimated

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Station	Route/Location	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT
0190041	IR80, E/B off-ramp of the E Fernley Intch 'Exit 48'	5900	5800	5700	5900	6000	5800	6000	6600	7000	6900
0190042	IR80, .6 mi E of the E Fernley Intch (W of the Nevada Pacific Pkwy Intch)	6900	6700	7200	7500	7600	7700	7900	8200	8300	8700
0190043	Ricci Ln, 160ft S of Wilson Ave						850	850	830	860	560
0190045	Fort Churchill Rd, 100ft W of US95A	230	190	190	150	200	200	200	160	160	210
0190046	Reese River Rd, 500ft E of Jenny's Ln					550	550	450	490	420	470
0190048	US95A, US50A/US95A, .45 N of Sierra Way	2800	2600	2600	2700	2500	2600	2600	2700	2900	2600
0190049	US95A, Goldfield Ave, .7 mi S of Luzier Ln	4600	4400	4800	4300	4600	4200	4300	5100	5100	5250
0190050	Sage St, 660ft W of US50A					750	700	750	740	820	940
0190051	US95A, US50A/US95A, 300ft N of SR339	5600	5500	5900	5900	5700	5100	5200	6500	6700	6900
0190052	US95A, US50A/US95A, 415ft E of SR339	5000	4800	4600	4900	4700	4500	4600	4800	5900	6050
0190053	US95A, US50A/US95A, 170ft W of Center St	5400	5500	5400	6100	6000	5700	5800	6400	6800	7000
0190054	SR208, Main St, 200ft S of US95A	5600	5500	5200	5400	5100	5100	5400	5500	5700	5800
0190055	US95A, US50A/US95A, 995ft E of Oregon St	3500	3400	3200	3200	3300	3300	3400	3500	4100	4200
0190056	SR208, Main St, 150ft N of SR340 (Bridge St)	5200	5200	5100	5000	3200	3600	3700	3900	5200	5350
0190057	Red Rock Rd, 310ft N of SR828 (Farm District Rd)					200	200	200	250	220	260
0190058	SR340, Bridge St, 590ft W of SR208 (Main St)	4100	4100	3900	4000	3600	4700	4900	4000	3400	3950
0190059	SR208, Main St, 320ft S of SR340 (Bridge St)	4100	4100	3900	3900	3700	3500	3700	3900	4200	4350
0190060	Cottonwood Ln, 640ft W of SR828 (Farm District Rd)					3700	4200	3800	4000	4100	4650
0190061	SR340, Bridge St, .2 mi E of SR339	2900	2800	2900	2700	2600	2600	2600	2800	3100	3200

Color indicates that the AADT value is estimated

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Station	Route/Location	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT
0190063	SR339, Nordyke Rd, 720ft N of SR827 (Mason Rd)	3400	3100	3200	2200	2900	3000	2300	2400	4200	3950
0190064	SR339, Nordyke Rd, 100ft N of Sheltered Hills Dr	2000	1800	1700	1800	1700	1800	2100	2000	1700	1850
0190065	SR827, McKenzie Ln, 400ft W of SR208 (Topaz-Yerington Rd)	1100	1200	1100	900	900	1200	850	740	1200	1250
0190066	SR208, Main St, 665ft N of Arrowleaf Pkwy	2900	2700	2700	2600	2700	2700	2400	2600	3000	3150
0190067	SR827, McKenzie Ln, .25 mi E of SR208	500	530	400	300	400	450	300	240	110	430
0190068	Desert Lakes Dr, 485ft E of SR828 (Farm District Rd).					250	250	200	250	280	270
0190075	SR208, Main St, 590ft S of Friedhoff Ln	590	510	490	450	500	450	400	370	440	530
0190080	SR208, Main St, 100ft N of Pine Grove Rd	460	430	540	350	350	350	350	350	390	450
0190089	SR825, Gage Rd, 600ft W of SR824 (Day Ln)	110	120	110	150	80	100	90	100	90	110
0190090	SR208, Main St, 990ft N of SR338 S of Smith	1500	1400	1400	1400	1500	1400	1500	1800	1600	1650
0190091	SR208, Main St, .2 mi W of SR338 S of Smith	1400	1100	1200	1100	810	900	1100	1500	1300	960
0190092	SR338, Sweetwater Rd, 500ft S of SR208 S of Smith	380	410	400	350	350	350	400	320	480	430
0190094	SR208, Main St, .5 mi E of SR823 to Colony District	1900	1800	1800	1600	1700	1700	1800	1800	2100	1750
0190095	SR823, Artesia Rd, .2 mi N of SR208	720	710	670	600	600	650	650	690	590	610
0190096	SR823, Artesia Rd, 315ft W of SR823/Hunewill Ln	220	220	210	200	200	200	200	170	280	220
0190097	SR824, Day Lane, 530ft E of SR823 (Lower Colony Rd/Artesia Rd)	300	270	300	300	300	250	300	300	350	300
0190098	SR824, Day Lane, .4 mi S of Artist View Dr	700	680	670	750	500	600	600	650	820	530

Color indicates that the AADT value is estimated

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Station	Route/Location	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT
0190099	SR829, Wellington Rd, 1.2 mi E of SR208 (Topaz-Yerington Rd)	370	370	370	350	400	300	350	300	510	720
0190101	SR338, Sweetwater Rd, 775ft S of SR829 (Wellington Rd)	500	450	460	450	500	400	500	440	270	880
0190103	SR338, Sweetwater Rd, 3.9 mi S of the County Rd at mp 9.7	310	300	330	300	350	300	350	250	400	630
0190108	SR208, Main St, 300ft S of SR827 (Mason Rd)	1500	1600	1500	1300	1600	1500	1500	1600	1700	1200
0190109	9th St, 920ft E of US95A	1200	1200	1100	850	900	900	750	970	860	960
0190110	Pete Henrichs Rd, .2 mi N of US95A to Mason Valley Wildlife Mgt Area	350	380	340	300	350	350	350	410	530	500
0190111	US95A, US50A/US95A, .45 mi E of Pete Hendrichs Rd	2300	2300	2200	2200	2400	2300	2800	2600	2900	2850
0190112	US95A, US50A/US95A, 350ft E of Miley Rd	1600	1500	1600	1600	1600	1600	1900	1700	2000	2100
0190114	IR80, E of the Wadsworth/ Fernley Intch 'Exit 46'	18000	19000	18000	19000	20500	19500	21000	22000	23000	24000
0190115	US95A, US50A/US95A, .6 mi N of Miller Ln	3800	4000	3900	3800	3900	3500	3700	4400	3900	4800
0190116	Weed Heights Rd, .5 mi W of US95A	650	670	640	550	600	500	600	640	670	710
0190119	Hardie Ln, 200ft S of Shadow Ln	1300	1300	1100	1000	1200	900	850	950	1100	1000
0190121	Fort Churchill Rd, 165ft N of Columbia Dr	880	880	880	900	1100	900	900	1400	1500	1550
0190122	Bridge St, 100ft E of Charlotte Ave in Yerington	720	810	810	650	650	700	550	580	900	690
0190123	Orchard St, 90ft E of S Whitaker St in Yerington	30	30	30	30	30	30	90	50	60	40
0190124	Pearl St, 200ft E of SR208	1400	1600	1400	1200	1100	1000	1000	1100	1200	910
0190125	Fir Av, 365ft E of US95A	750	790	750	600	600	550	450	650	1200	1100
0190126	Weeks-Ramsey Cutoff Rd, 365ft S of US50	1900	1900	1700	1600	1600	1700	2200	2300	2100	3250
0190127	Truckee Ln, 260ft W of SR427	670	600	580	550	600	600	560	610	570	610

Color indicates that the AADT value is estimated

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Station	Route/Location	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT
0190128	Miller Ln, 590ft E of US95A	590	550	610	550	500	450	450	550	570	950
0190129	IR80, W/B on-ramp of the Nevada Pacific Pkwy Intch 'Exit 50'			130	150	150	250	250	330	370	350
0190130	IR80, E/B off-ramp of the Nevada Pacific Pkwy Intch 'Exit 50'			170	150	150	250	300	330	380	340
0190131	IR80, E/B on-ramp of the Nevada Pacific Pkwy Intch 'Exit 50'			40	40	40	70	70	70	80	90
0190132	IR80, W/B off-ramp of the Nevada Pacific Pkwy Intch 'Exit 50'			70	70	60	80	90	100	100	110
0190133	IR80, .11 mi E of the Nevada Pacific Pkwy Intch 'Exit 50'			7900	7500	8800	8800	8100	11000	10000	8600
0190134	Vine St, 170ft N of Fremont St								350	230	230
0190135	Mission Wy, 150ft W of Truck Inn Way in Fernley								250	400	420
0190137	Canal Rd, 265ft W of US50A/US95A (S Fernley)								350	360	360
0190139	Jenny's Ln, 125ft W of SR828 (Farm District Rd)								550	610	690
0191100	Linehan Rd, 125ft N of US50	1100	980	900	990	960	950	1200	990	980	1100
0191101	Red Rock Rd, 100ft N of US50	1300	1200	1000	1200	1400	1400	1200	1200	1200	1250
0191102	Affonso Dr, 240ft N of US50	2600	2200	2400	2400	2500	2500	2750	2650	2800	1300
0191103	Industrial Pkwy, 125ft W of SR341	1550	1200	1400	1300	1300	1300	3900	1400	1250	1200
0191104	Newman Ln, 150ft S of US50	570	410	420	430	150	150	380	420	430	430
0191105	Kit Kat Rd, 100ft S of US50	650	600	540	480	510	500	530	470	520	210
0191202	Main St, 80ft N of US50	800	800	750	860	800	500	610	750	700	580
0191206	Flowery Ave, 75ft W of US50	1000	890	830	930	830	790	780	800	720	380
0191208	Fortune Dr, 150ft N of US50	3500	4200	4100	3700	4300	2250	3300	3300	5000	5150
0191209	Retail Rd, 100ft N of US50	1200	1400	1200	1200	1300	1300	1600	1700	1450	2750
0191211	Pine Cone Rd, 180ft E of Rose Peak Rd	1200	1100	1200	1200	1000	1200	1300	1300	2450	2000
0191300	Segale Rd, 180ft S of US50	360	360	350	360	290	300	400	380	430	360

Color indicates that the AADT value is estimated

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Station	Route/Location	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT
0191301	Graves Dr, 125ft S of US50	120	100	120	120	100	100	150	130	120	120
0191302	Occidental Dr, 100ft N of US50	1300	1000	1000	1150	1100	1000	1000	1100	1200	1200
0191303	Cardelli Dr, 200ft S of US50	340	350	330	410	350	350	350	360	360	360
0191304	Riverboat Rd, 75ft N of US50	2100	3000	2450	1950	2500	2400	2500	2500	3300	4050
0191305	Occidental Dr, 75ft N of US50	570	720	840	450	400	400	400	450	680	930
0191306	Occidental Dr, 85ft S of US50	1600	2000	1200	2200	1700	1600	1700	1800	1300	1350
0191309	Lafond Ave, 100ft N of US50	700	660	730	680	620	600	760	740	720	740
0191310	Mark Twain Ave, 125ft N of US50	330	280	270	230	210	200	280	380	210	240
0191311	Rainbow Dr, 150ft N of US50	245	210	230	220	200	200	170	140	100	100
0191312	Rainbow Dr, 160ft S of US50	160	160	170	140	170	150	150	160	200	110
0191313	Pinenut Dr, 125ft N of US50	160	200	190	220	200	200	190	190	100	160
0191314	Pinenut Dr, 150ft S of US50	130	110	110	90	120	150	110	110	110	120
0191315	Rainbow Dr, 170ft N of US50	50	80	60	50	50	50	40	40	50	150
0191316	Rainbow Dr, 150ft S of US50	150	150	160	110	110	100	100	80	120	180
0191401	Iron Mountain Rd, 300ft N of US50	280	320	310	290	250	340	350	340	300	320
0191402	Break A Heart Rd, 125ft S of US50	130	100	130	60	70	90	240	220	220	220
0191403	Boyer Ln, 100ft N of US50	580	550	510	550	500	520	570	480	610	560
0191404	Roys Rd, 350ft N of US50	120	60	60	50	50	40	40	40	40	40
0191405	Apache Dr, 400ft N of US50	1100	1100	1000	850	810	810	940	890	970	520
0191406	Shetland St, 175ft S of US50	230	230	260	270	690	250	280	320	320	290
0191407	Cheyenne Tr, 250ft N of US50	510	570	570	600	610	570	620	690	640	700
0191408	Stagecoach Dr, 200ft N of US50	470	430	430	410	340	340	360	450	390	390
0191409	Caroline Way, 100ft S of US50	210	210	230	230	200	250	250	250	230	250
0191410	Leegard Ave, 100ft S of US50	120	120	130	120	40	40	40	50	40	40
0191501	Shirlee Ave, 200ft S of US50	90	90	110	110	130	150	110	150	140	100
0191502	Topaz St, 100ft S of US50	890	800	860	250	660	650	780	560	730	860
0191504	Ramsey Cut-Off, 100ft N of US95A	1700	1600	1500	1300	1500	1400	1600	1750	1800	1850
0191506	Fir Ave, 200ft W of US95A	440	380	400	370	370	350	390	410	400	470
0191508	Virginia St, 100ft S of US50	370	270	280	240	230	250	260	270	240	230

Color indicates that the AADT value is estimated

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Station	Route/Location	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT
0191509	Donner Trail, 175ft E of US95A	780	800	730	600	610	600	690	700	580	570
0191510	Lahontan St, 275ft E of US95A	400	470	400	410	430	450	460	260	370	200
0191511	Esmeralda Ave, 125ft E of US95A	310	310	290	260	260	250	330	340	290	290
0191512	Nevada St, 300ft E of US95A	1000	970	940	880	580	600	390	750	750	720
0191513	Pyramid St, 150ft E of US95A	180	190	150	150	310	300	310	480	550	290
0191514	Lake Ave, 100ft W of US95A	300	290	260	140	360	350	450	880	1100	500
0191515	Lake St, 125ft E of US95A	370	450	410	280	350	350	300	360	340	370
0191516	Idaho Ave, 250ft W of US95A	1000	1000	900	850	800	800	750	790	800	780
0191517	Bowers Ave, 125ft E of US95A	90	100	170	60	40	40	60	50	50	50
0191518	Spruce Ave, 100ft W of US95A	740	660	560	510	580	550	580	620	750	810
0191519	Spruce Ave, 300ft E of US95A	330	340	310	320	350	300	570	440	250	240
0191522	Onyx St, 100ft S of US50	170	200	240	250	190	200	180	190	220	300
0191523	Jacaranda Ave, 75ft W of US95A	70	100	40	30	50	50	30	40	30	40
0191524	7th St, 100ft W of US95A	30	20	10	20	30	40	30	30	30	40
0191601	Farrell Ln, 100ft W of US95A	220	230	200	250	300	180	220	170	240	250
0191602	Penrose Ln, 125ft E of US95A	180	170	190	200	210	170	260	180	210	220
0191603	Campbell Ln, 150ft W of US95A	1300	1300	1200	1200	1150	1100	1000	1100	1200	1250
0191605	Luzier Ln, 150ft W of US95A	820	870	770	720	730	680	850	850	940	970
0191606	Snyder Ln, 100ft E of SR339	150	170	210	210	140	180	170	120	200	210
0191607	Nordyke Rd, 200ft E of SR339	70	60	30	50	80	30	20	20	20	20
0191608	Tucker Ln, 125ft W of US95A	340	350	350	380	310	330	340	280	350	360
0191610	Pete Henrichs Rd, 150ft W of Bonanza Ln	220	220	230	210	210	170	200	260	240	250
0191611	Fox Ln, 150ft S of US95A	160	180	190	190	170	190	210	160	190	200
0191612	Willhoyt Ln, 60ft N of US95A	220	200	190	180	210	140	180	150	170	180
0191613	Willhoyt Ln, 100ft S of US95A	140	110	40	60	30	40	50	60	70	70
0191614	Falcon Way, 175ft N of US95A	130	110	120	120	140	150	300	130	150	150
0191615	Nadel Ln, 125ft S of US95A	310	260	300	240	280	230	240	240	250	260
0191616	Bybee Ln, 100ft N of US95A	340	290	300	340	330	290	280	300	270	280

Color indicates that the AADT value is estimated

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Station	Route/Location	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT
0191617	Bybee Ln, 125ft S of US95A	60	70	20	40	30	30	30	20	30	30
0191619	Pursel Ln, 100ft E of SR208	370	460	560	740	500	660	730	700	260	770
0191620	Osborne Ln, 100ft W of SR208	160	130	160	150	120	110	120	90	90	90
0191621	Osborne Ln, 100ft W of SR208	150	200	170	240	160	210	210	250	90	90
0191622	Tognoli Ln, 125ft E of SR208	250	200	220	280	250	200	230	230	160	170
0191623	Mackenzie Ln, 150ft N of SR208	110	120	120	110	130	90	220	90	100	100
0191627	Sierra Way, .5 mi E of US95AN				130	90	190	170	90	90	90
0191701	Hudson Way, 100ft N of SR208	240	280	330	240	230	220	250	220	280	290
0191702	Hudson Auroa, 75ft S of SR208	240	260	230	260	210	270	210	200	220	210
0191703	Hardie Ln, 125ft S of SR208	40	60	20	20	20	20	20	30	20	30
0191704	Carter Ln, 100ft E of SR208	70	90	70	60	40	50	40	40	40	20
0191705	Albright Ln, 125ft E of SR338	70	60	80	90	100	40	20	50	90	50
0191706	Rowntree Rd, 100ft E of SR338	40	40	30	20	30	20	60	30	60	30
0191707	Saroni Rd, 75ft E of SR338	80	120	80	110	100	90	70	70	90	120
0191708	Desert Creek Rd, 200ft E of SR338	70	80	50	50	50	50	40	50	50	50
0191709	Rivers Rd, 150ft N of SR208	100	110	100	50	120	100	70	80	80	90
0191710	Crosby Ln, 200ft W of SR208	70	60	100	60	40	30	40	40	50	50
0191711	Smith Gage Rd, 100ft N of SR208	80	110	120	50	30	40	30	40	30	30
0191713	Artist View Rd, 100ft E of SR823	350	360	400	360	300	300	300	350	320	410
0191714	Artist View Rd, 150ft W of SR824 (Day Ln)	330	330	290	330	320	300	270	350	290	400

Color indicates that the AADT value is estimated

APPENDIX J

SCENARIO 1 STANDARD GROWTH ANALYSIS REPORTS



HCM 6th Signalized Intersection Summary

Classic Growth - 2025 AM

1: US 95 A/East St & Main St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	206	141	174	208	0	224	1	194	0	4	1
Future Volume (veh/h)	1	206	141	174	208	0	224	1	194	0	4	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	219	150	185	221	0	238	1	206	0	4	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	408	279	403	549	0	731	3	643	0	589	147
Arrive On Green	0.00	0.39	0.39	0.29	0.29	0.00	0.41	0.41	0.41	0.00	0.41	0.41
Sat Flow, veh/h	1853	1034	708	1054	1870	0	1411	8	1579	0	1444	361
Grp Volume(v), veh/h	1	0	369	185	221	0	238	0	207	0	0	5
Grp Sat Flow(s),veh/h/ln	1853	0	1743	1054	1870	0	1411	0	1586	0	0	1805
Q Serve(g_s), s	0.0	0.0	7.4	7.4	4.3	0.0	5.5	0.0	4.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.0	0.0	7.4	10.3	4.3	0.0	5.5	0.0	4.0	0.0	0.0	0.1
Prop In Lane	1.00		0.41	1.00		0.00	1.00		1.00	0.00		0.20
Lane Grp Cap(c), veh/h	4	0	687	403	549	0	731	0	646	0	0	736
V/C Ratio(X)	0.25	0.00	0.54	0.46	0.40	0.00	0.33	0.00	0.32	0.00	0.00	0.01
Avail Cap(c_a), veh/h	204	0	1056	511	742	0	731	0	646	0	0	736
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	22.6	0.0	10.6	16.3	12.8	0.0	9.6	0.0	9.2	0.0	0.0	8.0
Incr Delay (d2), s/veh	28.5	0.0	0.7	0.8	0.5	0.0	1.2	0.0	1.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	2.5	1.7	1.6	0.0	1.6	0.0	1.4	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.2	0.0	11.2	17.1	13.3	0.0	10.8	0.0	10.5	0.0	0.0	8.0
LnGrp LOS	D	A	B	B	B	A	B	A	B	A	A	A
Approach Vol, veh/h	370			406			445			5		
Approach Delay, s/veh	11.3			15.0			10.7			8.0		
Approach LOS	B			B			B			A		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	23.0			22.4			23.0			4.6		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.5			27.5			18.5			5.0		
Max Q Clear Time (g_c+I1), s	7.5			9.4			2.1			2.0		
Green Ext Time (p_c), s	1.6			2.3			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay			12.3									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

Classic Growth - 2025 AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	21	5	68	59	8	70	102	1076	47	47	548	31
Future Volume (veh/h)	21	5	68	59	8	70	102	1076	47	47	548	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	5	70	61	8	72	105	1109	48	48	565	32
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	45	30	413	95	51	456	136	1225	53	79	1098	62
Arrive On Green	0.03	0.28	0.28	0.05	0.30	0.30	0.08	0.35	0.35	0.04	0.32	0.32
Sat Flow, veh/h	1781	107	1495	1853	167	1507	1781	3470	150	1781	3419	193
Grp Volume(v), veh/h	22	0	75	61	0	80	105	568	589	48	293	304
Grp Sat Flow(s),veh/h/ln	1781	0	1601	1853	0	1674	1781	1777	1843	1781	1777	1836
Q Serve(g_s), s	0.8	0.0	2.3	2.1	0.0	2.3	3.8	19.9	19.9	1.7	8.8	8.8
Cycle Q Clear(g_c), s	0.8	0.0	2.3	2.1	0.0	2.3	3.8	19.9	19.9	1.7	8.8	8.8
Prop In Lane	1.00		0.93	1.00		0.90	1.00		0.08	1.00		0.11
Lane Grp Cap(c), veh/h	45	0	443	95	0	506	136	627	651	79	571	590
V/C Ratio(X)	0.49	0.00	0.17	0.64	0.00	0.16	0.77	0.91	0.91	0.61	0.51	0.52
Avail Cap(c_a), veh/h	136	0	443	144	0	506	264	643	667	139	571	590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	0.0	18.0	30.5	0.0	16.7	29.7	20.1	20.1	30.7	18.1	18.1
Incr Delay (d2), s/veh	8.1	0.0	0.8	7.1	0.0	0.7	9.0	16.2	15.8	7.3	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.9	1.1	0.0	0.9	1.9	10.0	10.4	0.9	3.4	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.6	0.0	18.8	37.6	0.0	17.4	38.6	36.3	35.9	38.0	18.9	18.9
LnGrp LOS	D	A	B	D	A	B	D	D	D	D	B	B
Approach Vol, veh/h	97		141			1262			645			
Approach Delay, s/veh	23.5		26.1			36.3			20.3			
Approach LOS	C		C			D			C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.1	24.3	7.4	27.6	7.9	22.6	9.5	25.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.2	5.1	23.7	5.1	18.1	9.7	19.1				
Max Q Clear Time (g_c+I2), s	12.8	4.3	3.7	21.9	4.1	4.3	5.8	10.8				
Green Ext Time (p_c), s	0.0	0.3	0.0	1.2	0.0	0.3	0.1	2.2				
Intersection Summary												
HCM 6th Ctrl Delay			30.3									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

Classic Growth - 2025 AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	48	21	24	218	21	47	20	844	315	78	378	23
Future Volume (veh/h)	48	21	24	218	21	47	20	844	315	78	378	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	23	26	234	23	51	22	908	339	84	406	25
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	515	460	298	615	521	45	999	445	210	1124	501
Arrive On Green	0.05	0.29	0.29	0.09	0.33	0.33	0.03	0.28	0.28	0.06	0.32	0.32
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	52	23	26	234	23	51	22	908	339	84	406	25
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	1.8	0.6	0.8	4.2	0.5	1.4	0.8	15.7	12.5	1.5	5.6	0.7
Cycle Q Clear(g_c), s	1.8	0.6	0.8	4.2	0.5	1.4	0.8	15.7	12.5	1.5	5.6	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	84	515	460	298	615	521	45	999	445	210	1124	501
V/C Ratio(X)	0.62	0.04	0.06	0.79	0.04	0.10	0.49	0.91	0.76	0.40	0.36	0.05
Avail Cap(c_a), veh/h	140	515	460	298	615	521	140	1003	447	271	1124	501
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.8	16.3	16.4	28.6	14.5	14.8	30.7	22.2	21.0	28.8	16.8	15.1
Incr Delay (d2), s/veh	7.2	0.2	0.2	12.9	0.1	0.4	8.0	11.9	7.5	1.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.3	0.3	2.2	0.2	0.5	0.4	7.5	5.1	0.6	2.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.0	16.5	16.6	41.5	14.7	15.2	38.6	34.1	28.4	30.1	17.0	15.2
LnGrp LOS	D	B	B	D	B	B	D	C	C	C	B	B
Approach Vol, veh/h	101		308			1269			515			
Approach Delay, s/veh	27.1		35.2			32.6			19.1			
Approach LOS	C		D			C			B			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.5	25.5	8.4	22.4	10.0	23.0	6.1	24.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.5	18.5	5.0	18.0				
Max Q Clear Time (g_c+I), s	13.8	3.4	3.5	17.7	6.2	2.8	2.8	7.6				
Green Ext Time (p_c), s	0.0	0.2	0.0	0.2	0.0	0.1	0.0	1.9				
Intersection Summary												
HCM 6th Ctrl Delay			29.6									
HCM 6th LOS			C									

Intersection						
Int Delay, s/veh	11					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	241	241	377	287	47	610
Future Vol, veh/h	241	241	377	287	47	610
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	259	259	405	309	51	656
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1318	560	0	0	714	0
Stage 1	560	-	-	-	-	-
Stage 2	758	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 173	528	-	-	886	-
Stage 1	572	-	-	-	-	-
Stage 2	463	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 163	528	-	-	886	-
Mov Cap-2 Maneuver	298	-	-	-	-	-
Stage 1	572	-	-	-	-	-
Stage 2	436	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	40.3	0		0.7		
HCM LOS	E					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	298	528	886	-
HCM Lane V/C Ratio	-	-	0.87	0.491	0.057	-
HCM Control Delay (s)	-	-	62.5	18.2	9.3	-
HCM Lane LOS	-	-	F	C	A	-
HCM 95th %tile Q(veh)	-	-	7.7	2.7	0.2	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	15.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	155	141	229	271	122	119
Future Vol, veh/h	155	141	229	271	122	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	167	152	246	291	131	128
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	914	131	259	0	-	0
Stage 1	131	-	-	-	-	-
Stage 2	783	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	303	919	1306	-	-	-
Stage 1	895	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	246	919	1306	-	-	-
Mov Cap-2 Maneuver	246	-	-	-	-	-
Stage 1	727	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	48.8	3.8		0		
HCM LOS	E					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1306	-	378	-	-	
HCM Lane V/C Ratio	0.189	-	0.842	-	-	
HCM Control Delay (s)	8.4	-	48.8	-	-	
HCM Lane LOS	A	-	E	-	-	
HCM 95th %tile Q(veh)	0.7	-	7.8	-	-	

HCM 6th Signalized Intersection Summary

1: US 95 A/East St & Main St

Classic Growth - 2025 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	446	256	280	279	5	161	5	194	12	4	0
Future Volume (veh/h)	0	446	256	280	279	5	161	5	194	12	4	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	469	269	295	294	5	169	5	204	13	4	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	3	688	395	356	1131	19	471	10	396	230	59	0
Arrive On Green	0.00	0.62	0.62	0.62	0.62	0.62	0.26	0.26	0.26	0.26	0.26	0.00
Sat Flow, veh/h	1853	1115	640	749	1834	31	1412	38	1553	549	233	0
Grp Volume(v), veh/h	0	0	738	295	0	299	169	0	209	17	0	0
Grp Sat Flow(s),veh/h/ln	1853	0	1755	749	0	1865	1412	0	1591	782	0	0
Q Serve(g_s), s	0.0	0.0	19.6	23.9	0.0	5.2	0.0	0.0	7.9	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	19.6	43.5	0.0	5.2	6.7	0.0	7.9	8.0	0.0	0.0
Prop In Lane	1.00		0.36	1.00		0.02	1.00		0.98	0.76		0.00
Lane Grp Cap(c), veh/h	3	0	1083	356	0	1151	471	0	406	290	0	0
V/C Ratio(X)	0.00	0.00	0.68	0.83	0.00	0.26	0.36	0.00	0.51	0.06	0.00	0.00
Avail Cap(c_a), veh/h	131	0	1320	356	0	1151	471	0	406	290	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	8.9	25.0	0.0	6.2	22.1	0.0	22.5	20.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.1	14.9	0.0	0.1	2.1	0.0	4.6	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	6.5	6.5	0.0	1.8	2.5	0.0	3.4	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	10.0	39.9	0.0	6.3	24.2	0.0	27.1	20.5	0.0	0.0
LnGrp LOS	A	A	B	D	A	A	C	A	C	C	A	A
Approach Vol, veh/h	738			594			378			17		
Approach Delay, s/veh	10.0			23.0			25.8			20.5		
Approach LOS	B			C			C			C		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	22.5			48.0			22.5			0.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			53.0			18.0			5.0		
Max Q Clear Time (g_c+I1), s	9.9			21.6			10.0			0.0		
Green Ext Time (p_c), s	1.2			6.8			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay			18.0									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

Classic Growth - 2025 PM



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	40	38	336	185	19	67	209	864	47	117	1471	58
Future Volume (veh/h)	40	38	336	185	19	67	209	864	47	117	1471	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	39	185	191	20	38	215	891	17	121	1516	29
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	58	51	243	190	151	286	228	1672	32	149	1514	29
Arrive On Green	0.03	0.18	0.18	0.10	0.25	0.25	0.13	0.47	0.47	0.08	0.42	0.42
Sat Flow, veh/h	1781	283	1345	1853	600	1140	1781	3567	68	1781	3567	68
Grp Volume(v), veh/h	41	0	224	191	0	58	215	444	464	121	754	791
Grp Sat Flow(s),veh/h/ln	1781	0	1628	1853	0	1740	1781	1777	1858	1781	1777	1858
Q Serve(g_s), s	2.5	0.0	14.4	11.3	0.0	2.8	13.2	19.5	19.5	7.3	46.7	46.7
Cycle Q Clear(g_c), s	2.5	0.0	14.4	11.3	0.0	2.8	13.2	19.5	19.5	7.3	46.7	46.7
Prop In Lane	1.00		0.83	1.00		0.66	1.00		0.04	1.00		0.04
Lane Grp Cap(c), veh/h	58	0	295	190	0	437	228	833	871	149	754	789
V/C Ratio(X)	0.71	0.00	0.76	1.00	0.00	0.13	0.94	0.53	0.53	0.81	1.00	1.00
Avail Cap(c_a), veh/h	110	0	295	190	0	437	228	833	871	243	754	789
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.7	0.0	42.8	49.3	0.0	31.9	47.5	20.7	20.7	49.5	31.6	31.7
Incr Delay (d2), s/veh	14.7	0.0	16.8	66.2	0.0	0.6	43.5	0.7	0.6	9.9	32.8	32.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	7.2	8.7	0.0	1.3	8.5	7.9	8.3	3.6	25.8	27.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.4	0.0	59.6	115.5	0.0	32.5	91.0	21.3	21.3	59.4	64.4	64.2
LnGrp LOS	E	A	E	F	A	C	F	C	C	E	F	F
Approach Vol, veh/h	265		249			1123			1666			
Approach Delay, s/veh	60.8		96.2			34.7			64.0			
Approach LOS	E		F			C			E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	32.1	13.7	56.1	15.8	24.4	18.6	51.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.8	24.4	15.0	45.8	11.3	19.9	14.1	46.7				
Max Q Clear Time (g_c+14), s	14.5	4.8	9.3	21.5	13.3	16.4	15.2	48.7				
Green Ext Time (p_c), s	0.0	0.2	0.1	6.0	0.0	0.4	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	56.2
HCM 6th LOS	E

Notes

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

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

Classic Growth - 2025 PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	74	38	67	679	149	138	76	520	378	176	878	71
Future Volume (veh/h)	74	38	67	679	149	138	76	520	378	176	878	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	40	71	715	157	145	80	547	398	185	924	75
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	409	365	783	749	635	103	947	422	257	1007	449
Arrive On Green	0.06	0.23	0.23	0.23	0.40	0.40	0.06	0.27	0.27	0.07	0.28	0.28
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	78	40	71	715	157	145	80	547	398	185	924	75
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	3.8	1.6	3.2	18.0	4.9	5.4	3.9	11.9	21.9	4.7	22.4	3.2
Cycle Q Clear(g_c), s	3.8	1.6	3.2	18.0	4.9	5.4	3.9	11.9	21.9	4.7	22.4	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	101	409	365	783	749	635	103	947	422	257	1007	449
V/C Ratio(X)	0.77	0.10	0.19	0.91	0.21	0.23	0.78	0.58	0.94	0.72	0.92	0.17
Avail Cap(c_a), veh/h	190	409	365	796	749	635	110	947	422	284	1018	454
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.4	27.0	27.6	33.6	17.5	17.6	41.4	28.3	32.0	40.3	30.9	24.0
Incr Delay (d2), s/veh	11.9	0.5	1.2	14.8	0.6	0.8	27.8	0.9	29.7	7.7	12.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.7	1.3	8.8	2.1	2.0	2.5	5.0	11.5	2.2	10.9	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.3	27.4	28.8	48.4	18.1	18.4	69.2	29.2	61.6	47.9	43.6	24.2
LnGrp LOS	D	C	C	D	B	B	E	C	E	D	D	C
Approach Vol, veh/h	189				1017		1025				1184	
Approach Delay, s/veh	38.6				39.4		44.9				43.0	
Approach LOS	D				D		D				D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	40.1	11.1	28.2	24.6	25.0	9.6	29.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.5	31.5	7.3	23.7	20.5	20.5	5.5	25.5				
Max Q Clear Time (g_c+I), s	15.8	7.4	6.7	23.9	20.0	5.2	5.9	24.4				
Green Ext Time (p_c), s	0.0	1.3	0.0	0.0	0.2	0.5	0.0	0.7				
Intersection Summary												
HCM 6th Ctrl Delay			42.3									
HCM 6th LOS			D									

Intersection						
Int Delay, s/veh	10					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	166	96	257	279	243	387
Future Vol, veh/h	166	96	257	279	243	387
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	178	103	276	300	261	416
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1364	426	0	0	576	0
Stage 1	426	-	-	-	-	-
Stage 2	938	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 163	628	-	-	997	-
Stage 1	659	-	-	-	-	-
Stage 2	381	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 120	628	-	-	997	-
Mov Cap-2 Maneuver	223	-	-	-	-	-
Stage 1	659	-	-	-	-	-
Stage 2	281	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	45.4	0		3.8		
HCM LOS	E					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	223	628	997	-
HCM Lane V/C Ratio	-	-	0.8	0.164	0.262	-
HCM Control Delay (s)	-	-	64.7	11.9	9.9	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	5.9	0.6	1.1	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	54.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	185	216	134	240	436	138
Future Vol, veh/h	185	216	134	240	436	138
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	199	232	144	258	469	148
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1015	469	617	0	-	0
Stage 1	469	-	-	-	-	-
Stage 2	546	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	264	594	963	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	224	594	963	-	-	-
Mov Cap-2 Maneuver	224	-	-	-	-	-
Stage 1	536	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	179.1	3.4		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	963	-	337	-	-	
HCM Lane V/C Ratio	0.15	-	1.279	-	-	
HCM Control Delay (s)	9.4	-	179.1	-	-	
HCM Lane LOS	A	-	F	-	-	
HCM 95th %tile Q(veh)	0.5	-	19.9	-	-	

HCM 6th Signalized Intersection Summary

1: US 95 A/East St & Main St

Classic Growth - 2030 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	263	180	222	265	0	286	2	248	0	5	2
Future Volume (veh/h)	2	263	180	222	265	0	286	2	248	0	5	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	280	191	236	282	0	304	2	264	0	5	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	478	326	395	690	0	646	4	565	0	456	182
Arrive On Green	0.00	0.46	0.46	0.37	0.37	0.00	0.36	0.36	0.36	0.00	0.36	0.36
Sat Flow, veh/h	1853	1036	707	959	1870	0	1409	12	1575	0	1271	508
Grp Volume(v), veh/h	2	0	471	236	282	0	304	0	266	0	0	7
Grp Sat Flow(s),veh/h/ln	1853	0	1743	959	1870	0	1409	0	1587	0	0	1779
Q Serve(g_s), s	0.1	0.0	10.0	12.1	5.6	0.0	8.9	0.0	6.5	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.1	0.0	10.0	17.4	5.6	0.0	9.0	0.0	6.5	0.0	0.0	0.1
Prop In Lane	1.00		0.41	1.00		0.00	1.00		0.99	0.00		0.29
Lane Grp Cap(c), veh/h	5	0	804	395	690	0	646	0	570	0	0	639
V/C Ratio(X)	0.39	0.00	0.59	0.60	0.41	0.00	0.47	0.00	0.47	0.00	0.00	0.01
Avail Cap(c_a), veh/h	185	0	973	395	690	0	646	0	570	0	0	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	25.0	0.0	10.0	18.1	11.8	0.0	13.2	0.0	12.4	0.0	0.0	10.3
Incr Delay (d2), s/veh	43.0	0.0	0.7	2.5	0.4	0.0	2.5	0.0	2.7	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	3.3	2.6	2.1	0.0	2.9	0.0	2.4	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	0.0	10.6	20.6	12.1	0.0	15.7	0.0	15.1	0.0	0.0	10.4
LnGrp LOS	E	A	B	C	B	A	B	A	B	A	A	B
Approach Vol, veh/h	473			518			570			7		
Approach Delay, s/veh	10.9			16.0			15.4			10.4		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	22.5			27.6			22.5			4.6		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			28.0			18.0			5.0		
Max Q Clear Time (g_c+I1), s	11.0			12.0			2.1			2.1		
Green Ext Time (p_c), s	1.6			3.0			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	14.2											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

Classic Growth - 2030 AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	27	7	87	75	10	89	130	1373	60	60	700	39
Future Volume (veh/h)	27	7	87	75	10	89	130	1373	60	60	700	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	7	90	77	10	92	134	1415	62	62	722	40
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	28	355	100	43	399	168	1569	69	80	1379	76
Arrive On Green	0.03	0.24	0.24	0.05	0.26	0.26	0.09	0.45	0.45	0.04	0.40	0.40
Sat Flow, veh/h	1781	116	1487	1853	164	1509	1781	3468	152	1781	3423	190
Grp Volume(v), veh/h	28	0	97	77	0	102	134	724	753	62	375	387
Grp Sat Flow(s),veh/h/ln	1781	0	1603	1853	0	1673	1781	1777	1843	1781	1777	1836
Q Serve(g_s), s	1.3	0.0	4.2	3.5	0.0	4.1	6.3	32.3	32.5	3.0	13.7	13.7
Cycle Q Clear(g_c), s	1.3	0.0	4.2	3.5	0.0	4.1	6.3	32.3	32.5	3.0	13.7	13.7
Prop In Lane	1.00		0.93	1.00		0.90	1.00		0.08	1.00		0.10
Lane Grp Cap(c), veh/h	51	0	383	100	0	443	168	804	834	80	716	740
V/C Ratio(X)	0.55	0.00	0.25	0.77	0.00	0.23	0.80	0.90	0.90	0.77	0.52	0.52
Avail Cap(c_a), veh/h	106	0	383	119	0	443	280	839	870	114	716	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.1	0.0	26.5	40.1	0.0	24.7	38.0	21.7	21.8	40.5	19.4	19.4
Incr Delay (d2), s/veh	9.1	0.0	1.6	22.1	0.0	1.2	8.3	12.4	12.5	18.4	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	1.8	2.2	0.0	1.8	3.1	14.9	15.5	1.7	5.4	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.3	0.0	28.0	62.2	0.0	25.9	46.3	34.2	34.2	59.0	20.1	20.1
LnGrp LOS	D	A	C	E	A	C	D	C	C	E	C	C
Approach Vol, veh/h	125		179			1611			824			
Approach Delay, s/veh	33.0		41.5			35.2			23.0			
Approach LOS	C		D			D			C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	27.2	8.4	43.3	9.1	25.0	12.6	39.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	20.9	5.5	40.5	5.5	20.5	13.5	32.5				
Max Q Clear Time (g_c+I), s	13.3	6.1	5.0	34.5	5.5	6.2	8.3	15.7				
Green Ext Time (p_c), s	0.0	0.4	0.0	4.3	0.0	0.4	0.1	4.3				
Intersection Summary												
HCM 6th Ctrl Delay			31.8									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

Classic Growth - 2030 AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	62	27	31	279	27	60	26	1078	402	99	482	29
Future Volume (veh/h)	62	27	31	279	27	60	26	1078	402	99	482	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	29	33	300	29	65	28	1159	432	106	518	31
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	87	429	383	373	562	476	52	1296	578	198	1396	623
Arrive On Green	0.05	0.24	0.24	0.11	0.30	0.30	0.03	0.36	0.36	0.06	0.39	0.39
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	67	29	33	300	29	65	28	1159	432	106	518	31
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	2.9	1.0	1.3	6.7	0.9	2.4	1.2	24.2	18.7	2.3	8.2	1.0
Cycle Q Clear(g_c), s	2.9	1.0	1.3	6.7	0.9	2.4	1.2	24.2	18.7	2.3	8.2	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	87	429	383	373	562	476	52	1296	578	198	1396	623
V/C Ratio(X)	0.77	0.07	0.09	0.80	0.05	0.14	0.54	0.89	0.75	0.54	0.37	0.05
Avail Cap(c_a), veh/h	165	429	383	373	562	476	124	1332	594	220	1396	623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	23.0	23.1	34.3	19.6	20.1	37.7	23.6	21.8	36.1	17.0	14.8
Incr Delay (d2), s/veh	13.3	0.3	0.4	12.1	0.2	0.6	8.5	8.0	5.0	2.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.4	0.5	3.3	0.4	0.9	0.6	10.7	7.2	1.0	3.1	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.3	23.3	23.6	46.3	19.7	20.7	46.2	31.6	26.9	38.3	17.1	14.8
LnGrp LOS	D	C	C	D	B	C	D	C	C	D	B	B
Approach Vol, veh/h	129			394			1619			655		
Approach Delay, s/veh	37.4			40.2			30.6			20.5		
Approach LOS	D			D			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.3	28.2	9.0	33.2	13.0	23.5	6.8	35.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.3	20.2	5.0	29.5	8.5	19.0	5.5	29.0				
Max Q Clear Time (g_c+I), s	14.9	4.4	4.3	26.2	8.7	3.3	3.2	10.2				
Green Ext Time (p_c), s	0.0	0.2	0.0	2.5	0.0	0.2	0.0	3.3				
Intersection Summary												
HCM 6th Ctrl Delay				29.9								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	42.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	308	308	481	366	60	778
Future Vol, veh/h	308	308	481	366	60	778
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	331	331	517	394	65	837
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1681	714	0	0	911	0
Stage 1	714	-	-	-	-	-
Stage 2	967	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 104	431	-	-	748	-
Stage 1	485	-	-	-	-	-
Stage 2	369	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 95	431	-	-	748	-
Mov Cap-2 Maneuver	~ 223	-	-	-	-	-
Stage 1	485	-	-	-	-	-
Stage 2	337	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	158.5	0		0.7		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	223	431	748	-
HCM Lane V/C Ratio	-	-	1.485	0.768	0.086	-
HCM Control Delay (s)	-	-	281	36.1	10.3	-
HCM Lane LOS	-	-	F	E	B	-
HCM 95th %tile Q(veh)	-	-	19.8	6.5	0.3	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	88.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	198	180	292	345	156	152
Future Vol, veh/h	198	180	292	345	156	152
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	213	194	314	371	168	163
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1167	168	331	0	-	0
Stage 1	168	-	-	-	-	-
Stage 2	999	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	214	876	1228	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	356	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 159	876	1228	-	-	-
Mov Cap-2 Maneuver	~ 159	-	-	-	-	-
Stage 1	641	-	-	-	-	-
Stage 2	356	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s\$	303.5	4.1		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1228	-	261	-	-	
HCM Lane V/C Ratio	0.256	-	1.557	-	-	
HCM Control Delay (s)	8.9	-\$ 303.5		-	-	
HCM Lane LOS	A	-	F	-	-	
HCM 95th %tile Q(veh)	1	-	24.4	-	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 6th Signalized Intersection Summary

Classic Growth - 2030 PM

1: US 95 A/East St & Main St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	570	327	357	356	7	205	7	248	15	5	0
Future Volume (veh/h)	0	570	327	357	356	7	205	7	248	15	5	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	600	344	376	375	7	216	7	261	16	5	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1	855	490	357	1403	26	293	7	263	46	9	0
Arrive On Green	0.00	0.77	0.77	0.77	0.77	0.77	0.17	0.17	0.17	0.17	0.17	0.00
Sat Flow, veh/h	1853	1116	640	618	1830	34	1411	42	1550	7	51	0
Grp Volume(v), veh/h	0	0	944	376	0	382	216	0	268	21	0	0
Grp Sat Flow(s),veh/h/ln	1853	0	1755	618	0	1864	1411	0	1591	58	0	0
Q Serve(g_s), s	0.0	0.0	38.2	69.5	0.0	8.5	0.0	0.0	23.6	0.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	38.2	107.7	0.0	8.5	20.8	0.0	23.6	23.8	0.0	0.0
Prop In Lane	1.00		0.36	1.00		0.02	1.00		0.97	0.76		0.00
Lane Grp Cap(c), veh/h	1	0	1345	357	0	1429	293	0	270	55	0	0
V/C Ratio(X)	0.00	0.00	0.70	1.05	0.00	0.27	0.74	0.00	0.99	0.38	0.00	0.00
Avail Cap(c_a), veh/h	66	0	1464	357	0	1429	293	0	270	55	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	8.3	40.5	0.0	4.8	57.1	0.0	58.3	60.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.4	62.4	0.0	0.1	15.3	0.0	53.4	19.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	13.7	19.2	0.0	3.1	8.8	0.0	13.6	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	9.7	102.9	0.0	4.9	72.5	0.0	111.6	79.9	0.0	0.0
LnGrp LOS	A	A	A	F	A	A	E	A	F	E	A	A
Approach Vol, veh/h	944		758			484			21			
Approach Delay, s/veh	9.7		53.5			94.2			79.9			
Approach LOS	A		D			F			E			
Timer - Assigned Phs	2		4		6		7	8				
Phs Duration (G+Y+Rc), s	28.3		112.2		28.3		0.0	112.2				
Change Period (Y+Rc), s	4.5		4.5		4.5		4.5	4.5				
Max Green Setting (Gmax), s	23.8		117.2		23.8		5.0	107.7				
Max Q Clear Time (g_c+I1), s	25.6		40.2		25.8		0.0	109.7				
Green Ext Time (p_c), s	0.0		12.0		0.0		0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	43.9											
HCM 6th LOS	D											

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

Classic Growth - 2030 PM



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	51	48	429	236	24	86	267	1103	60	149	1878	74
Future Volume (veh/h)	51	48	429	236	24	86	267	1103	60	149	1878	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	49	281	243	25	58	275	1137	31	154	1936	45
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	44	253	191	129	300	232	1744	48	178	1645	38
Arrive On Green	0.04	0.18	0.18	0.10	0.25	0.25	0.13	0.49	0.49	0.10	0.46	0.46
Sat Flow, veh/h	1781	241	1381	1853	520	1207	1781	3534	96	1781	3550	82
Grp Volume(v), veh/h	53	0	330	243	0	83	275	572	596	154	965	1016
Grp Sat Flow(s),veh/h/ln	1781	0	1622	1853	0	1728	1781	1777	1853	1781	1777	1856
Q Serve(g_s), s	4.4	0.0	27.5	15.5	0.0	5.7	19.5	36.0	36.0	12.8	69.5	69.5
Cycle Q Clear(g_c), s	4.4	0.0	27.5	15.5	0.0	5.7	19.5	36.0	36.0	12.8	69.5	69.5
Prop In Lane	1.00		0.85	1.00		0.70	1.00		0.05	1.00		0.04
Lane Grp Cap(c), veh/h	68	0	297	191	0	429	232	877	915	178	823	860
V/C Ratio(X)	0.78	0.00	1.11	1.27	0.00	0.19	1.19	0.65	0.65	0.87	1.17	1.18
Avail Cap(c_a), veh/h	120	0	297	191	0	429	232	877	915	259	823	860
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.5	0.0	61.3	67.3	0.0	44.5	65.3	28.4	28.4	66.5	40.2	40.3
Incr Delay (d2), s/veh	17.0	0.0	85.0	155.7	0.0	1.0	119.2	1.7	1.7	18.4	90.3	93.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	18.4	15.7	0.0	2.6	16.5	15.6	16.2	6.7	50.2	53.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.5	0.0	146.3	223.0	0.0	45.5	184.5	30.1	30.0	84.9	130.5	133.9
LnGrp LOS	F	A	F	F	A	D	F	C	C	F	F	F
Approach Vol, veh/h	383				326		1443				2135	
Approach Delay, s/veh	138.3				177.8		59.5				128.8	
Approach LOS	F				F		E				F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), \$0.2	41.8	19.5	78.5	20.0	32.0	24.0	74.0					
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	32.9	21.8	67.2	15.5	27.5	19.5	69.5					
Max Q Clear Time (g_c+16, s)	7.7	14.8	38.0	17.5	29.5	21.5	71.5					
Green Ext Time (p_c), s	0.0	0.4	0.2	8.9	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 110.1

HCM 6th LOS F

Notes

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

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

Classic Growth - 2030 PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	94	48	86	867	190	176	97	664	482	224	1120	91
Future Volume (veh/h)	94	48	86	867	190	176	97	664	482	224	1120	91
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	99	51	91	913	200	185	102	699	507	236	1179	96
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	125	307	274	927	694	588	113	1095	488	302	1179	526
Arrive On Green	0.07	0.17	0.17	0.27	0.37	0.37	0.06	0.31	0.31	0.09	0.33	0.33
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	99	51	91	913	200	185	102	699	507	236	1179	96
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	6.0	2.7	5.5	28.9	8.3	9.1	6.3	18.6	33.9	7.4	36.5	4.7
Cycle Q Clear(g_c), s	6.0	2.7	5.5	28.9	8.3	9.1	6.3	18.6	33.9	7.4	36.5	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	125	307	274	927	694	588	113	1095	488	302	1179	526
V/C Ratio(X)	0.79	0.17	0.33	0.99	0.29	0.31	0.90	0.64	1.04	0.78	1.00	0.18
Avail Cap(c_a), veh/h	206	307	274	927	694	588	113	1095	488	405	1179	526
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.4	38.8	39.9	40.0	24.4	24.6	51.2	32.8	38.1	49.2	36.7	26.1
Incr Delay (d2), s/veh	10.7	1.2	3.2	25.9	1.0	1.4	54.5	1.2	51.0	6.9	26.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	1.3	2.4	15.3	3.8	3.6	4.5	8.0	19.6	3.4	19.5	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.1	39.9	43.2	65.9	25.4	26.0	105.6	34.0	89.0	56.1	62.9	26.3
LnGrp LOS	E	D	D	E	C	C	F	C	F	E	E	C
Approach Vol, veh/h	241			1298			1308			1511		
Approach Delay, s/veh	49.8			54.0			60.9			59.5		
Approach LOS	D			D			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.2	45.3	14.1	38.4	34.0	23.5	11.5	41.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	12.3	35.8	12.9	30.6	29.5	19.0	7.0	36.5				
Max Q Clear Time (g_c+I), s	11.1	11.1	9.4	35.9	30.9	7.5	8.3	38.5				
Green Ext Time (p_c), s	0.1	1.7	0.3	0.0	0.0	0.5	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	57.8											
HCM 6th LOS	E											

Intersection						
Int Delay, s/veh	45.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	212	123	328	356	310	494
Future Vol, veh/h	212	123	328	356	310	494
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	228	132	353	383	333	531
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1742	545	0	0	736	0
Stage 1	545	-	-	-	-	-
Stage 2	1197	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 95	538	-	-	870	-
Stage 1	581	-	-	-	-	-
Stage 2	286	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 59	538	-	-	870	-
Mov Cap-2 Maneuver	~ 141	-	-	-	-	-
Stage 1	581	-	-	-	-	-
Stage 2	~ 176	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	235.3	0		4.5		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	141	538	870	-
HCM Lane V/C Ratio	-	-	1.617	0.246	0.383	-
HCM Control Delay (s)	-	-	\$ 363.8	13.9	11.7	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	16.2	1	1.8	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	203.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	236	275	171	306	556	176
Future Vol, veh/h	236	275	171	306	556	176
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	254	296	184	329	598	189
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1295	598	787	0	-	0
Stage 1	598	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 179	502	832	-	-	-
Stage 1	549	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 139	502	832	-	-	-
Mov Cap-2 Maneuver	~ 139	-	-	-	-	-
Stage 1	428	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s\$	681.2	3.8		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	832	-	228	-	-	
HCM Lane V/C Ratio	0.221	-	2.41	-	-	
HCM Control Delay (s)	10.6	-\$ 681.2		-	-	
HCM Lane LOS	B	-	F	-	-	
HCM 95th %tile Q(veh)	0.8	-	44.8	-	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 6th Signalized Intersection Summary

Classic Growth - 2040 AM

1: US 95 A/East St & Main St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	429	293	362	432	0	465	3	404	0	8	3
Future Volume (veh/h)	3	429	293	362	432	0	465	3	404	0	8	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	456	312	385	460	0	495	3	430	0	9	3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	7	651	445	295	1111	0	476	3	487	0	415	138
Arrive On Green	0.00	0.63	0.63	0.59	0.59	0.00	0.31	0.31	0.31	0.00	0.31	0.31
Sat Flow, veh/h	1853	1035	708	728	1870	0	1402	11	1576	0	1342	447
Grp Volume(v), veh/h	3	0	768	385	460	0	495	0	433	0	0	12
Grp Sat Flow(s),veh/h/ln	1853	0	1743	728	1870	0	1402	0	1587	0	0	1790
Q Serve(g_s), s	0.2	0.0	42.5	49.0	19.3	0.0	44.3	0.0	37.7	0.0	0.0	0.7
Cycle Q Clear(g_c), s	0.2	0.0	42.5	86.5	19.3	0.0	45.0	0.0	37.7	0.0	0.0	0.7
Prop In Lane	1.00		0.41	1.00		0.00	1.00		0.99	0.00		0.25
Lane Grp Cap(c), veh/h	7	0	1096	295	1111	0	476	0	491	0	0	553
V/C Ratio(X)	0.41	0.00	0.70	1.31	0.41	0.00	1.04	0.00	0.88	0.00	0.00	0.02
Avail Cap(c_a), veh/h	64	0	1149	295	1111	0	476	0	491	0	0	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	72.3	0.0	17.9	52.4	15.9	0.0	52.9	0.0	47.8	0.0	0.0	35.0
Incr Delay (d2), s/veh	33.4	0.0	1.8	160.1	0.2	0.0	51.7	0.0	20.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	17.5	24.2	8.5	0.0	24.8	0.0	17.8	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	105.7	0.0	19.7	212.5	16.1	0.0	104.7	0.0	67.8	0.0	0.0	35.0
LnGrp LOS	F	A	B	F	B	A	F	A	E	A	A	D
Approach Vol, veh/h	771			845			928			12		
Approach Delay, s/veh	20.1			105.6			87.5			35.0		
Approach LOS	C			F			F			D		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	49.5			96.1			49.5			5.1		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	45.0			96.0			45.0			5.0		
Max Q Clear Time (g_c+I1), s	47.0			44.5			2.7			2.2		
Green Ext Time (p_c), s	0.0			7.9			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	72.9											
HCM 6th LOS	E											

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

Classic Growth - 2040 AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	45	11	142	123	17	145	212	2237	98	98	1139	64
Future Volume (veh/h)	45	11	142	123	17	145	212	2237	98	98	1139	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	11	146	127	18	149	219	2306	101	101	1174	66
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	14	190	125	29	241	244	2162	94	110	1876	105
Arrive On Green	0.03	0.13	0.13	0.07	0.16	0.16	0.14	0.62	0.62	0.06	0.55	0.55
Sat Flow, veh/h	1781	112	1490	1853	181	1495	1781	3469	151	1781	3420	192
Grp Volume(v), veh/h	46	0	157	127	0	167	219	1173	1234	101	609	631
Grp Sat Flow(s),veh/h/ln	1781	0	1602	1853	0	1676	1781	1777	1843	1781	1777	1836
Q Serve(g_s), s	3.8	0.0	14.2	10.1	0.0	13.9	18.1	93.5	93.5	8.5	35.4	35.4
Cycle Q Clear(g_c), s	3.8	0.0	14.2	10.1	0.0	13.9	18.1	93.5	93.5	8.5	35.4	35.4
Prop In Lane	1.00		0.93	1.00		0.89	1.00		0.08	1.00		0.10
Lane Grp Cap(c), veh/h	59	0	204	125	0	271	244	1108	1149	110	974	1007
V/C Ratio(X)	0.78	0.00	0.77	1.02	0.00	0.62	0.90	1.06	1.07	0.91	0.63	0.63
Avail Cap(c_a), veh/h	86	0	204	125	0	271	350	1108	1149	110	974	1007
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.0	0.0	63.3	69.9	0.0	58.6	63.7	28.3	28.3	70.0	23.3	23.3
Incr Delay (d2), s/veh	23.5	0.0	23.9	85.5	0.0	10.1	18.9	44.0	48.9	59.4	1.3	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	7.2	7.8	0.0	6.7	9.5	50.5	54.0	5.7	14.9	15.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	95.5	0.0	87.3	155.4	0.0	68.7	82.6	72.3	77.2	129.3	24.6	24.5
LnGrp LOS	F	A	F	F	A	E	F	F	F	F	C	C
Approach Vol, veh/h	203		294			2626			1341			
Approach Delay, s/veh	89.1		106.2			75.4			32.4			
Approach LOS	F		F			E			C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	28.7	13.8	98.0	14.6	23.6	25.0	86.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.8	22.0	9.3	93.5	10.1	19.1	29.5	73.3				
Max Q Clear Time (g_c+1.5I), s	15.8	15.9	10.5	95.5	12.1	16.2	20.1	37.4				
Green Ext Time (p_c), s	0.0	0.4	0.0	0.0	0.0	0.2	0.4	10.4				
Intersection Summary												
HCM 6th Ctrl Delay			65.2									
HCM 6th LOS			E									

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

Classic Growth - 2040 AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	100	45	50	454	45	98	42	1755	655	162	786	47
Future Volume (veh/h)	100	45	50	454	45	98	42	1755	655	162	786	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	108	48	54	488	48	105	45	1887	704	174	845	51
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	245	219	506	394	334	58	1891	843	190	1971	879
Arrive On Green	0.07	0.14	0.14	0.15	0.21	0.21	0.03	0.53	0.53	0.05	0.55	0.55
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	108	48	54	488	48	105	45	1887	704	174	845	51
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	8.4	3.4	4.3	19.7	2.9	7.8	3.5	74.2	52.3	7.0	19.5	2.1
Cycle Q Clear(g_c), s	8.4	3.4	4.3	19.7	2.9	7.8	3.5	74.2	52.3	7.0	19.5	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	131	245	219	506	394	334	58	1891	843	190	1971	879
V/C Ratio(X)	0.82	0.20	0.25	0.96	0.12	0.31	0.77	1.00	0.83	0.92	0.43	0.06
Avail Cap(c_a), veh/h	204	245	219	506	394	334	116	1891	843	190	1971	879
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.9	53.5	53.9	59.4	44.8	46.7	67.2	32.7	27.6	65.8	18.2	14.4
Incr Delay (d2), s/veh	14.2	1.8	2.7	31.0	0.6	2.5	19.3	20.2	7.3	42.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	1.6	1.9	10.7	1.4	3.3	1.9	35.6	20.8	4.2	7.9	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.2	55.3	56.5	90.4	45.4	49.2	86.5	52.8	34.8	108.0	18.4	14.4
LnGrp LOS	E	E	E	F	D	D	F	D	C	F	B	B
Approach Vol, veh/h	210			641			2636			1070		
Approach Delay, s/veh	67.4			80.3			48.6			32.8		
Approach LOS	E			F			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.8	34.0	12.2	79.0	25.0	23.8	9.1	82.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	16.0	23.8	7.7	74.5	20.5	19.3	9.1	73.1				
Max Q Clear Time (g_c+T1), s	10.4	9.8	9.0	76.2	21.7	6.3	5.5	21.5				
Green Ext Time (p_c), s	0.1	0.4	0.0	0.0	0.0	0.4	0.0	7.2				
Intersection Summary												
HCM 6th Ctrl Delay	50.2											
HCM 6th LOS	D											

Intersection						
Int Delay, s/veh	372.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	501	501	783	596	98	1268
Future Vol, veh/h	501	501	783	596	98	1268
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	539	539	842	641	105	1363
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2736	1163	0	0	1483	0
Stage 1	1163	-	-	-	-	-
Stage 2	1573	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 22	~ 237	-	-	454	-
Stage 1	~ 297	-	-	-	-	-
Stage 2	~ 188	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 17	~ 237	-	-	454	-
Mov Cap-2 Maneuver	~ 96	-	-	-	-	-
Stage 1	~ 297	-	-	-	-	-
Stage 2	~ 145	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, \$	1390.7	0		1.1		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	96	237	454	-
HCM Lane V/C Ratio	-	-	5.612	2.273	0.232	-
HCM Control Delay (s)	-	\$	2162.4	\$	619	15.3
HCM Lane LOS	-	-	F	F	C	-
HCM 95th %tile Q(veh)	-	-	58.8	42.5	0.9	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection

Int Delay, s/veh 1140.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	323	293	476	563	254	248
Future Vol, veh/h	323	293	476	563	254	248
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	347	315	512	605	273	267

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1902	273	540
Stage 1	273	-	-
Stage 2	1629	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	~ 76	766	1028
Stage 1	773	-	-
Stage 2	~ 176	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	~ 38	766	1028
Mov Cap-2 Maneuver	~ 38	-	-
Stage 1	388	-	-
Stage 2	~ 176	-	-

Approach	EB	NB	SB
HCM Control Delay, \$	3984.3	5.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1028	-	69	-	-
HCM Lane V/C Ratio	0.498	-	9.6	-	-
HCM Control Delay (s)	11.9	\$	3984.3	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	2.8	-	77.4	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th Signalized Intersection Summary

Classic Growth - 2040 PM

1: US 95 A/East St & Main St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	928	532	582	579	11	334	11	404	25	8	0
Future Volume (veh/h)	0	928	532	582	579	11	334	11	404	25	8	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	977	560	613	609	12	352	12	425	26	8	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	3	614	352	120	1005	20	549	13	464	135	28	0
Arrive On Green	0.00	0.55	0.55	0.55	0.55	0.55	0.30	0.30	0.30	0.30	0.30	0.00
Sat Flow, veh/h	1853	1116	640	351	1828	36	1407	44	1548	96	94	0
Grp Volume(v), veh/h	0	0	1537	613	0	621	352	0	437	34	0	0
Grp Sat Flow(s),veh/h/ln	1853	0	1755	351	0	1864	1407	0	1592	190	0	0
Q Serve(g_s), s	0.0	0.0	33.0	0.0	0.0	13.5	0.0	0.0	15.9	0.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	33.0	33.0	0.0	13.5	13.7	0.0	15.9	16.7	0.0	0.0
Prop In Lane	1.00		0.36	1.00		0.02	1.00		0.97	0.76		0.00
Lane Grp Cap(c), veh/h	3	0	965	120	0	1025	549	0	478	163	0	0
V/C Ratio(X)	0.00	0.00	1.59	5.11	0.00	0.61	0.64	0.00	0.92	0.21	0.00	0.00
Avail Cap(c_a), veh/h	154	0	965	120	0	1025	549	0	478	163	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	13.5	30.0	0.0	9.1	19.5	0.0	20.3	19.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	271.4	1867.2	0.0	1.0	5.7	0.0	24.7	2.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	83.1	63.9	0.0	4.8	5.1	0.0	8.7	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	284.9	1897.2	0.0	10.1	25.1	0.0	45.0	22.2	0.0	0.0
LnGrp LOS	A	A	F	F	A	B	C	A	D	C	A	A
Approach Vol, veh/h	1537			1234			789			34		
Approach Delay, s/veh	284.9			947.6			36.1			22.2		
Approach LOS	F			F			D			C		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	22.5			37.5			22.5			0.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			33.0			18.0			5.0		
Max Q Clear Time (g_c+I1), s	17.9			35.0			18.7			0.0		
Green Ext Time (p_c), s	0.1			0.0			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	455.3											
HCM 6th LOS	F											

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

Classic Growth - 2040 PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	84	78	699	384	39	139	435	1797	98	242	3059	120
Future Volume (veh/h)	84	78	699	384	39	139	435	1797	98	242	3059	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	80	560	396	40	112	448	1853	70	249	3154	93
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	46	325	179	120	337	208	1665	63	137	1539	45
Arrive On Green	0.06	0.23	0.23	0.10	0.27	0.27	0.12	0.48	0.48	0.08	0.44	0.44
Sat Flow, veh/h	1781	202	1414	1853	452	1265	1781	3492	131	1781	3525	103
Grp Volume(v), veh/h	87	0	640	396	0	152	448	937	986	249	1582	1665
Grp Sat Flow(s),veh/h/ln	1781	0	1616	1853	0	1717	1781	1777	1847	1781	1777	1852
Q Serve(g_s), s	7.2	0.0	34.5	14.5	0.0	10.7	17.5	71.5	71.5	11.5	65.5	65.5
Cycle Q Clear(g_c), s	7.2	0.0	34.5	14.5	0.0	10.7	17.5	71.5	71.5	11.5	65.5	65.5
Prop In Lane	1.00		0.88	1.00		0.74	1.00		0.07	1.00		0.06
Lane Grp Cap(c), veh/h	108	0	372	179	0	457	208	847	880	137	776	809
V/C Ratio(X)	0.81	0.00	1.72	2.21	0.00	0.33	2.16	1.11	1.12	1.82	2.04	2.06
Avail Cap(c_a), veh/h	177	0	372	179	0	457	208	847	880	137	776	809
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.6	0.0	57.8	67.8	0.0	44.3	66.3	39.2	39.3	69.2	42.3	42.3
Incr Delay (d2), s/veh	13.2	0.0	336.1	562.9	0.0	1.9	535.8	64.4	68.9	397.7	472.0	481.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	48.9	34.9	0.0	4.9	38.9	45.4	48.3	20.3	129.8	137.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	82.8	0.0	393.8	630.6	0.0	46.3	602.0	103.6	108.2	466.9	514.2	523.2
LnGrp LOS	F	A	F	F	A	D	F	F	F	F	F	F
Approach Vol, veh/h	727			548			2371			3496		
Approach Delay, s/veh	356.6			468.5			199.7			515.1		
Approach LOS	F			F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	3.6	44.4	16.0	76.0	19.0	39.0	22.0	70.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	14.9	34.1	11.5	71.5	14.5	34.5	17.5	65.5				
Max Q Clear Time (g_c+I), s	19.2	12.7	13.5	73.5	16.5	36.5	19.5	67.5				
Green Ext Time (p_c), s	0.1	0.9	0.0	0.0	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	390.7											
HCM 6th LOS	F											
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

Classic Growth - 2040 PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	153	78	139	1412	309	287	159	1081	786	365	1825	148
Future Volume (veh/h)	153	78	139	1412	309	287	159	1081	786	365	1825	148
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	161	82	146	1486	325	302	167	1138	827	384	1921	156
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	231	206	1002	593	502	125	1213	541	410	1386	618
Arrive On Green	0.10	0.13	0.13	0.29	0.32	0.32	0.07	0.34	0.34	0.12	0.39	0.39
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	161	82	146	1486	325	302	167	1138	827	384	1921	156
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	13.4	6.3	13.2	43.5	21.5	24.1	10.5	46.5	51.2	16.5	58.5	10.0
Cycle Q Clear(g_c), s	13.4	6.3	13.2	43.5	21.5	24.1	10.5	46.5	51.2	16.5	58.5	10.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	183	231	206	1002	593	502	125	1213	541	410	1386	618
V/C Ratio(X)	0.88	0.35	0.71	1.48	0.55	0.60	1.34	0.94	1.53	0.94	1.39	0.25
Avail Cap(c_a), veh/h	211	231	206	1002	593	502	125	1213	541	410	1386	618
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.3	59.5	62.5	53.2	42.3	43.2	69.8	47.9	49.4	65.5	45.8	31.0
Incr Delay (d2), s/veh	28.9	4.2	18.6	222.6	3.6	5.2	196.9	13.6	247.1	28.9	178.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	3.2	6.5	49.7	10.6	10.2	11.6	22.7	57.1	8.9	59.6	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	95.3	63.7	81.1	275.9	46.0	48.5	266.6	61.5	296.5	94.5	224.0	31.2
LnGrp LOS	F	E	F	F	D	D	F	E	F	F	F	C
Approach Vol, veh/h	389			2113			2132			2461		
Approach Delay, s/veh	83.3			208.0			168.7			191.6		
Approach LOS	F			F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	52.1	22.3	55.7	48.0	24.0	15.0	63.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.8	45.2	17.8	51.2	43.5	19.5	10.5	58.5				
Max Q Clear Time (g_c+T1), s	11.5	26.1	18.5	53.2	45.5	15.2	12.5	60.5				
Green Ext Time (p_c), s	0.1	2.8	0.0	0.0	0.0	0.5	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	183.7											
HCM 6th LOS	F											

Intersection						
Int Delay, s/veh	2488					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	345	201	535	579	504	805
Future Vol, veh/h	345	201	535	579	504	805
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	371	216	575	623	542	866
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	2837	887	0	0	1198	0
Stage 1	887	-	-	-	-	-
Stage 2	1950	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 19	343	-	-	583	-
Stage 1	402	-	-	-	-	-
Stage 2	~ 122	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	~ 1	343	-	-	583	-
Mov Cap-2 Maneuver	~ 8	-	-	-	-	-
Stage 1	402	-	-	-	-	-
Stage 2	~ 9	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	3484.3	0	18.7			
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	8	343	583	-
HCM Lane V/C Ratio	-	-	46.371	0.63	0.93	-
HCM Control Delay (s)	-	-	21321.9	31.8	48.6	-
HCM Lane LOS	-	-	F	D	E	-
HCM 95th %tile Q(veh)	-	-	48.3	4.1	11.9	-
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Intersection

Int Delay, s/veh 2309.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	384	449	279	499	905	287
Future Vol, veh/h	384	449	279	499	905	287
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	413	483	300	537	973	309

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2110	973	1282
Stage 1	973	-	-
Stage 2	1137	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	~ 56	~ 306	541
Stage 1	~ 366	-	-
Stage 2	~ 306	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	~ 25	~ 306	541
Mov Cap-2 Maneuver	~ 25	-	-
Stage 1	~ 163	-	-
Stage 2	~ 306	-	-

Approach	EB	NB	SB
HCM Control Delay, \$	7763.8	7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	541	-	50	-	-
HCM Lane V/C Ratio	0.555	-	17.914	-	-
HCM Control Delay (s)	19.6	\$	7763.8	-	-
HCM Lane LOS	C	-	F	-	-
HCM 95th %tile Q(veh)	3.4	-	108.8	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

APPENDIX K

SCENARIO 2 HIGH GROWTH ANALYSIS REPORTS

HCM 6th Signalized Intersection Summary

1: US 95 A/East St & Main St

High Growth - 2025 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	273	186	230	275	0	296	2	257	0	5	2
Future Volume (veh/h)	2	273	186	230	275	0	296	2	257	0	5	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	290	198	245	293	0	315	2	273	0	5	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	478	326	382	690	0	646	4	566	0	456	182
Arrive On Green	0.00	0.46	0.46	0.37	0.37	0.00	0.36	0.36	0.36	0.00	0.36	0.36
Sat Flow, veh/h	1853	1036	707	944	1870	0	1409	12	1575	0	1271	508
Grp Volume(v), veh/h	2	0	488	245	293	0	315	0	275	0	0	7
Grp Sat Flow(s),veh/h/ln	1853	0	1743	944	1870	0	1409	0	1587	0	0	1779
Q Serve(g_s), s	0.1	0.0	10.5	12.6	5.9	0.0	9.3	0.0	6.7	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.1	0.0	10.5	18.5	5.9	0.0	9.4	0.0	6.7	0.0	0.0	0.1
Prop In Lane	1.00		0.41	1.00		0.00	1.00		0.99	0.00		0.29
Lane Grp Cap(c), veh/h	5	0	804	382	690	0	646	0	570	0	0	639
V/C Ratio(X)	0.39	0.00	0.61	0.64	0.42	0.00	0.49	0.00	0.48	0.00	0.00	0.01
Avail Cap(c_a), veh/h	185	0	973	382	690	0	646	0	570	0	0	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	25.0	0.0	10.1	18.9	11.8	0.0	13.4	0.0	12.5	0.0	0.0	10.3
Incr Delay (d2), s/veh	43.0	0.0	0.7	3.6	0.4	0.0	2.6	0.0	2.9	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	3.4	2.9	2.2	0.0	3.0	0.0	2.5	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	0.0	10.8	22.6	12.3	0.0	16.0	0.0	15.4	0.0	0.0	10.4
LnGrp LOS	E	A	B	C	B	A	B	A	B	A	A	B
Approach Vol, veh/h	490			538			590			7		
Approach Delay, s/veh	11.1			16.9			15.7			10.4		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	22.5			27.6			22.5			4.6		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			28.0			18.0			5.0		
Max Q Clear Time (g_c+I1), s	11.4			12.5			2.1			2.1		
Green Ext Time (p_c), s	1.6			3.1			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	14.7											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

High Growth - 2025 AM



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	28	7	90	78	11	92	135	1423	62	62	725	41
Future Volume (veh/h)	28	7	90	78	11	92	135	1423	62	62	725	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	7	93	80	11	95	139	1467	64	64	747	42
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	25	336	104	44	379	174	1610	70	82	1412	79
Arrive On Green	0.03	0.23	0.23	0.06	0.25	0.25	0.10	0.46	0.46	0.05	0.41	0.41
Sat Flow, veh/h	1781	112	1490	1853	174	1501	1781	3469	151	1781	3420	192
Grp Volume(v), veh/h	29	0	100	80	0	106	139	750	781	64	388	401
Grp Sat Flow(s),veh/h/ln	1781	0	1602	1853	0	1675	1781	1777	1843	1781	1777	1836
Q Serve(g_s), s	1.4	0.0	4.5	3.7	0.0	4.4	6.6	33.8	34.1	3.1	14.2	14.2
Cycle Q Clear(g_c), s	1.4	0.0	4.5	3.7	0.0	4.4	6.6	33.8	34.1	3.1	14.2	14.2
Prop In Lane	1.00		0.93	1.00		0.90	1.00		0.08	1.00		0.10
Lane Grp Cap(c), veh/h	52	0	361	104	0	423	174	825	855	82	733	758
V/C Ratio(X)	0.56	0.00	0.28	0.77	0.00	0.25	0.80	0.91	0.91	0.78	0.53	0.53
Avail Cap(c_a), veh/h	105	0	361	118	0	423	282	853	885	113	733	758
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.4	0.0	27.7	40.3	0.0	25.8	38.2	21.5	21.6	40.8	19.1	19.1
Incr Delay (d2), s/veh	9.2	0.0	1.9	23.4	0.0	1.4	8.2	13.3	13.5	20.4	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	1.9	2.4	0.0	1.9	3.2	15.7	16.5	1.8	5.6	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	0.0	29.6	63.7	0.0	27.2	46.4	34.8	35.0	61.2	19.8	19.8
LnGrp LOS	D	A	C	E	A	C	D	C	D	E	B	B
Approach Vol, veh/h	129		186			1670			853			
Approach Delay, s/veh	34.3		42.9			35.9			22.9			
Approach LOS	C		D			D			C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	26.3	8.5	44.6	9.4	24.0	12.9	40.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.9	5.5	41.5	5.5	19.5	13.7	33.3					
Max Q Clear Time (g_c+I), s	6.4	5.1	36.1	5.7	6.5	8.6	16.2					
Green Ext Time (p_c), s	0.0	0.4	0.0	4.0	0.0	0.4	0.1	4.5				
Intersection Summary												
HCM 6th Ctrl Delay	32.4											
HCM 6th LOS	C											

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

High Growth - 2025 AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	64	28	32	289	28	62	27	1116	416	103	500	30
Future Volume (veh/h)	64	28	32	289	28	62	27	1116	416	103	500	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	30	34	311	30	67	29	1200	447	111	538	32
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	89	426	380	371	557	472	53	1307	583	199	1406	627
Arrive On Green	0.05	0.24	0.24	0.11	0.30	0.30	0.03	0.37	0.37	0.06	0.40	0.40
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	69	30	34	311	30	67	29	1200	447	111	538	32
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	3.0	1.0	1.3	7.0	0.9	2.5	1.3	25.5	19.7	2.5	8.5	1.0
Cycle Q Clear(g_c), s	3.0	1.0	1.3	7.0	0.9	2.5	1.3	25.5	19.7	2.5	8.5	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	89	426	380	371	557	472	53	1307	583	199	1406	627
V/C Ratio(X)	0.78	0.07	0.09	0.84	0.05	0.14	0.55	0.92	0.77	0.56	0.38	0.05
Avail Cap(c_a), veh/h	130	426	380	371	557	472	126	1324	591	218	1406	627
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	23.3	23.4	34.7	19.8	20.4	37.9	23.9	22.0	36.3	17.0	14.8
Incr Delay (d2), s/veh	16.1	0.3	0.5	15.5	0.2	0.6	8.5	10.3	6.0	2.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.5	0.5	3.6	0.4	0.9	0.7	11.7	7.7	1.1	3.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.3	23.6	23.8	50.1	20.0	21.0	46.4	34.2	28.0	38.9	17.2	14.8
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	B	B
Approach Vol, veh/h	133			408			1676			681		
Approach Delay, s/veh	39.1			43.1			32.8			20.6		
Approach LOS	D			D			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	28.1	9.1	33.6	13.0	23.5	6.9	35.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.8	21.7	5.0	29.5	8.5	19.0	5.6	28.9				
Max Q Clear Time (g_c+1.5I), s	15.0	4.5	4.5	27.5	9.0	3.3	3.3	10.5				
Green Ext Time (p_c), s	0.0	0.3	0.0	1.6	0.0	0.2	0.0	3.4				
Intersection Summary												
HCM 6th Ctrl Delay	31.7											
HCM 6th LOS	C											

Intersection						
Int Delay, s/veh	50.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	319	319	498	379	62	806
Future Vol, veh/h	319	319	498	379	62	806
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	343	343	535	408	67	867
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1740	739	0	0	943	0
Stage 1	739	-	-	-	-	-
Stage 2	1001	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 96	417	-	-	727	-
Stage 1	472	-	-	-	-	-
Stage 2	355	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 87	417	-	-	727	-
Mov Cap-2 Maneuver	~ 213	-	-	-	-	-
Stage 1	472	-	-	-	-	-
Stage 2	~ 322	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	189.3	0		0.7		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	213	417	727	-
HCM Lane V/C Ratio	-	-	1.61	0.823	0.092	-
HCM Control Delay (s)	-	-\$	335.6	42.9	10.5	-
HCM Lane LOS	-	-	F	E	B	-
HCM 95th %tile Q(veh)	-	-	22.1	7.6	0.3	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	110.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	206	186	303	358	161	158
Future Vol, veh/h	206	186	303	358	161	158
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	222	200	326	385	173	170
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1210	173	343	0	-	0
Stage 1	173	-	-	-	-	-
Stage 2	1037	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 202	871	1216	-	-	-
Stage 1	857	-	-	-	-	-
Stage 2	342	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 148	871	1216	-	-	-
Mov Cap-2 Maneuver	~ 148	-	-	-	-	-
Stage 1	627	-	-	-	-	-
Stage 2	342	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	\$ 379	4.1		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1216	-	244	-	-	
HCM Lane V/C Ratio	0.268	-	1.727	-	-	
HCM Control Delay (s)	9	-	\$ 379	-	-	
HCM Lane LOS	A	-	F	-	-	
HCM 95th %tile Q(veh)	1.1	-	27.9	-	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 6th Signalized Intersection Summary

1: US 95 A/East St & Main St

High Growth - 2025 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	590	338	370	368	7	213	7	257	16	5	0
Future Volume (veh/h)	0	590	338	370	368	7	213	7	257	16	5	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	621	356	389	387	7	224	7	271	17	5	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1	862	494	342	1414	26	288	7	254	45	8	0
Arrive On Green	0.00	0.77	0.77	0.77	0.77	0.77	0.16	0.16	0.16	0.16	0.16	0.00
Sat Flow, veh/h	1853	1116	640	599	1831	33	1411	40	1551	0	48	0
Grp Volume(v), veh/h	0	0	977	389	0	394	224	0	278	22	0	0
Grp Sat Flow(s),veh/h/ln	1853	0	1755	599	0	1864	1411	0	1591	48	0	0
Q Serve(g_s), s	0.0	0.0	40.2	68.3	0.0	8.6	0.0	0.0	23.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	40.2	108.5	0.0	8.6	21.5	0.0	23.0	23.0	0.0	0.0
Prop In Lane	1.00		0.36	1.00		0.02	1.00		0.97	0.77		0.00
Lane Grp Cap(c), veh/h	1	0	1355	342	0	1440	288	0	260	53	0	0
V/C Ratio(X)	0.00	0.00	0.72	1.14	0.00	0.27	0.78	0.00	1.07	0.41	0.00	0.00
Avail Cap(c_a), veh/h	66	0	1474	342	0	1440	288	0	260	53	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	8.2	41.2	0.0	4.6	58.1	0.0	58.8	62.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.6	90.8	0.0	0.1	18.5	0.0	74.7	22.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	14.3	21.1	0.0	3.1	9.4	0.0	14.7	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	9.8	132.0	0.0	4.7	76.6	0.0	133.5	84.1	0.0	0.0
LnGrp LOS	A	A	A	F	A	A	E	A	F	F	A	A
Approach Vol, veh/h	977		783			502			22			
Approach Delay, s/veh	9.8		68.0			108.1			84.1			
Approach LOS	A		E			F			F			
Timer - Assigned Phs	2		4		6		7	8				
Phs Duration (G+Y+Rc), s	27.5		113.0		27.5		0.0	113.0				
Change Period (Y+Rc), s	4.5		4.5		4.5		4.5	4.5				
Max Green Setting (Gmax), s	23.0		118.0		23.0		5.0	108.5				
Max Q Clear Time (g_c+I1), s	25.0		42.2		25.0		0.0	110.5				
Green Ext Time (p_c), s	0.0		12.9		0.0		0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	52.1											
HCM 6th LOS	D											

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

High Growth - 2025 PM



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	53	50	445	244	25	89	276	1143	62	154	1945	76
Future Volume (veh/h)	53	50	445	244	25	89	276	1143	62	154	1945	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	52	298	252	26	61	285	1178	33	159	2005	47
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	71	46	262	191	131	307	232	1710	48	182	1621	38
Arrive On Green	0.04	0.19	0.19	0.10	0.25	0.25	0.13	0.48	0.48	0.10	0.46	0.46
Sat Flow, veh/h	1781	241	1381	1853	516	1211	1781	3531	99	1781	3549	83
Grp Volume(v), veh/h	55	0	350	252	0	87	285	593	618	159	1000	1052
Grp Sat Flow(s),veh/h/ln	1781	0	1622	1853	0	1727	1781	1777	1853	1781	1777	1855
Q Serve(g_s), s	4.6	0.0	28.5	15.5	0.0	5.9	19.5	38.7	38.7	13.2	68.5	68.5
Cycle Q Clear(g_c), s	4.6	0.0	28.5	15.5	0.0	5.9	19.5	38.7	38.7	13.2	68.5	68.5
Prop In Lane	1.00		0.85	1.00		0.70	1.00		0.05	1.00		0.04
Lane Grp Cap(c), veh/h	71	0	308	191	0	438	232	861	897	182	811	847
V/C Ratio(X)	0.78	0.00	1.14	1.32	0.00	0.20	1.23	0.69	0.69	0.87	1.23	1.24
Avail Cap(c_a), veh/h	121	0	308	191	0	438	232	861	897	241	811	847
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.4	0.0	60.8	67.3	0.0	44.0	65.3	29.9	29.9	66.4	40.8	40.8
Incr Delay (d2), s/veh	16.6	0.0	93.2	174.3	0.0	1.0	135.6	2.3	2.2	22.6	115.1	118.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	19.8	16.7	0.0	2.7	17.5	16.9	17.6	7.1	55.1	58.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.0	0.0	153.9	241.6	0.0	45.0	200.8	32.3	32.2	89.0	155.8	159.6
LnGrp LOS	F	A	F	F	A	D	F	C	C	F	F	F
Approach Vol, veh/h	405		339			1496			2211			
Approach Delay, s/veh	145.0		191.1			64.3			152.8			
Approach LOS	F		F			E			F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), \$0.4	42.6	19.8	77.2	20.0	33.0	24.0	73.0					
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5					
Max Green Setting (Gmax), s	33.8	20.3	67.7	15.5	28.5	19.5	68.5					
Max Q Clear Time (g_c+I), s	7.9	15.2	40.7	17.5	30.5	21.5	70.5					
Green Ext Time (p_c), s	0.0	0.5	0.2	9.2	0.0	0.0	0.0					

Intersection Summary

HCM 6th Ctrl Delay 125.3

HCM 6th LOS F

Notes

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

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

High Growth - 2025 PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	97	50	89	898	197	182	101	687	500	232	1160	94
Future Volume (veh/h)	97	50	89	898	197	182	101	687	500	232	1160	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	102	53	94	945	207	192	106	723	526	244	1221	99
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	127	284	254	965	688	583	116	1146	511	305	1229	548
Arrive On Green	0.07	0.16	0.16	0.28	0.37	0.37	0.07	0.32	0.32	0.09	0.35	0.35
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	102	53	94	945	207	192	106	723	526	244	1221	99
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	6.8	3.1	6.4	32.6	9.4	10.5	7.1	20.8	38.7	8.3	41.1	5.2
Cycle Q Clear(g_c), s	6.8	3.1	6.4	32.6	9.4	10.5	7.1	20.8	38.7	8.3	41.1	5.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	127	284	254	965	688	583	116	1146	511	305	1229	548
V/C Ratio(X)	0.80	0.19	0.37	0.98	0.30	0.33	0.92	0.63	1.03	0.80	0.99	0.18
Avail Cap(c_a), veh/h	200	284	254	965	688	583	116	1146	511	409	1229	548
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.9	43.6	45.0	42.9	27.0	27.3	55.8	34.6	40.6	53.7	39.1	27.4
Incr Delay (d2), s/veh	11.7	1.4	4.1	24.0	1.1	1.5	57.9	1.1	47.4	7.9	24.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	1.5	2.8	16.8	4.4	4.2	5.0	9.0	21.4	3.9	21.5	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.6	45.1	49.1	66.9	28.1	28.8	113.7	35.7	88.1	61.6	63.2	27.5
LnGrp LOS	E	D	D	E	C	C	F	D	F	E	E	C
Approach Vol, veh/h	249			1344			1355			1564		
Approach Delay, s/veh	55.4			55.5			62.1			60.7		
Approach LOS	E			E			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.1	48.6	15.1	43.2	38.0	23.7	12.3	46.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	39.2	39.2	14.2	35.1	33.5	19.2	7.8	41.5				
Max Q Clear Time (g_c+I), s	12.5	12.5	10.3	40.7	34.6	8.4	9.1	43.1				
Green Ext Time (p_c), s	0.1	1.8	0.3	0.0	0.0	0.5	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	59.3											
HCM 6th LOS	E											

Intersection						
Int Delay, s/veh	56.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	220	128	340	368	321	512
Future Vol, veh/h	220	128	340	368	321	512
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	237	138	366	396	345	551
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1805	564	0	0	762	0
Stage 1	564	-	-	-	-	-
Stage 2	1241	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 87	525	-	-	850	-
Stage 1	569	-	-	-	-	-
Stage 2	273	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 52	525	-	-	850	-
Mov Cap-2 Maneuver	~ 130	-	-	-	-	-
Stage 1	569	-	-	-	-	-
Stage 2	~ 162	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	293	0		4.7		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	130	525	850	-
HCM Lane V/C Ratio	-	-	1.82	0.262	0.406	-
HCM Control Delay (s)	-	-	\$ 455.2	14.3	12.1	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	18.2	1	2	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	236.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	244	285	177	317	576	182
Future Vol, veh/h	244	285	177	317	576	182
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	262	306	190	341	619	196
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1340	619	815	0	-	0
Stage 1	619	-	-	-	-	-
Stage 2	721	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 168	489	812	-	-	-
Stage 1	537	-	-	-	-	-
Stage 2	482	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 129	489	812	-	-	-
Mov Cap-2 Maneuver	~ 129	-	-	-	-	-
Stage 1	411	-	-	-	-	-
Stage 2	482	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	\$ 794	3.9		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	812	-	214	-	-	
HCM Lane V/C Ratio	0.234	-	2.658	-	-	
HCM Control Delay (s)	10.8	-	\$ 794	-	-	
HCM Lane LOS	B	-	F	-	-	
HCM 95th %tile Q(veh)	0.9	-	48.7	-	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 6th Signalized Intersection Summary

1: US 95 A/East St & Main St

High Growth - 2030 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	439	300	371	442	0	476	3	414	0	9	3
Future Volume (veh/h)	3	439	300	371	442	0	476	3	414	0	9	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	467	319	395	470	0	506	3	440	0	10	3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	7	659	450	291	1124	0	466	3	476	0	418	125
Arrive On Green	0.00	0.64	0.64	0.60	0.60	0.00	0.30	0.30	0.30	0.00	0.30	0.30
Sat Flow, veh/h	1853	1036	707	716	1870	0	1401	11	1576	0	1381	414
Grp Volume(v), veh/h	3	0	786	395	470	0	506	0	443	0	0	13
Grp Sat Flow(s),veh/h/ln	1853	0	1743	716	1870	0	1401	0	1587	0	0	1796
Q Serve(g_s), s	0.2	0.0	43.5	49.0	19.5	0.0	43.3	0.0	39.3	0.0	0.0	0.7
Cycle Q Clear(g_c), s	0.2	0.0	43.5	87.5	19.5	0.0	44.0	0.0	39.3	0.0	0.0	0.7
Prop In Lane	1.00		0.41	1.00		0.00	1.00		0.99	0.00		0.23
Lane Grp Cap(c), veh/h	7	0	1108	291	1124	0	466	0	480	0	0	543
V/C Ratio(X)	0.41	0.00	0.71	1.36	0.42	0.00	1.09	0.00	0.92	0.00	0.00	0.02
Avail Cap(c_a), veh/h	64	0	1161	291	1124	0	466	0	480	0	0	543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	72.3	0.0	17.6	52.4	15.5	0.0	53.5	0.0	49.2	0.0	0.0	35.7
Incr Delay (d2), s/veh	33.4	0.0	1.9	182.2	0.2	0.0	67.0	0.0	25.9	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	17.8	25.7	8.5	0.0	26.3	0.0	19.2	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	105.7	0.0	19.5	234.6	15.7	0.0	120.5	0.0	75.1	0.0	0.0	35.8
LnGrp LOS	F	A	B	F	B	A	F	A	E	A	A	D
Approach Vol, veh/h	789			865			949			13		
Approach Delay, s/veh	19.8			115.7			99.3			35.8		
Approach LOS	B			F			F			D		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	48.5			97.1			48.5			5.1		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	44.0			97.0			44.0			5.0		
Max Q Clear Time (g_c+l1), s	46.0			45.5			2.7			2.2		
Green Ext Time (p_c), s	0.0			8.2			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	80.4											
HCM 6th LOS	F											

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

High Growth - 2030 AM



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	46	11	146	126	17	148	217	2291	100	100	1167	66
Future Volume (veh/h)	46	11	146	126	17	148	217	2291	100	100	1167	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	47	11	151	130	18	153	224	2362	103	103	1203	68
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	61	14	188	125	28	239	249	2168	94	110	1870	106
Arrive On Green	0.03	0.13	0.13	0.07	0.16	0.16	0.14	0.62	0.62	0.06	0.55	0.55
Sat Flow, veh/h	1781	109	1493	1853	176	1499	1781	3470	150	1781	3419	193
Grp Volume(v), veh/h	47	0	162	130	0	171	224	1201	1264	103	625	646
Grp Sat Flow(s),veh/h/ln	1781	0	1602	1853	0	1675	1781	1777	1843	1781	1777	1836
Q Serve(g_s), s	3.9	0.0	14.8	10.1	0.0	14.3	18.6	93.7	93.7	8.6	36.8	36.9
Cycle Q Clear(g_c), s	3.9	0.0	14.8	10.1	0.0	14.3	18.6	93.7	93.7	8.6	36.8	36.9
Prop In Lane	1.00		0.93	1.00		0.89	1.00		0.08	1.00		0.11
Lane Grp Cap(c), veh/h	61	0	202	125	0	267	249	1110	1151	110	972	1004
V/C Ratio(X)	0.78	0.00	0.80	1.04	0.00	0.64	0.90	1.08	1.10	0.93	0.64	0.64
Avail Cap(c_a), veh/h	100	0	202	125	0	267	355	1110	1151	110	972	1004
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.9	0.0	63.7	69.9	0.0	59.0	63.5	28.2	28.2	70.0	23.8	23.8
Incr Delay (d2), s/veh	18.7	0.0	27.7	92.3	0.0	11.2	19.1	52.0	57.5	64.5	1.5	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	7.6	8.0	0.0	7.0	9.7	53.2	56.9	5.9	15.6	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.6	0.0	91.4	162.3	0.0	70.3	82.6	80.2	85.6	134.6	25.2	25.2
LnGrp LOS	F	A	F	F	A	E	F	F	F	F	C	C
Approach Vol, veh/h	209		301			2689			1374			
Approach Delay, s/veh	91.2		110.0			82.9			33.4			
Approach LOS	F		F			F			C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	28.4	13.8	98.2	14.6	23.4	25.5	86.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	20.6	20.6	9.3	93.7	10.1	18.9	29.9	73.1				
Max Q Clear Time (g_c+1.5), s	16.3	16.3	10.6	95.7	12.1	16.8	20.6	38.9				
Green Ext Time (p_c), s	0.0	0.3	0.0	0.0	0.0	0.2	0.4	10.7				

Intersection Summary

HCM 6th Ctrl Delay	70.2
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

High Growth - 2030 AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	103	46	51	465	46	100	43	1797	670	165	805	49
Future Volume (veh/h)	103	46	51	465	46	100	43	1797	670	165	805	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	111	49	55	500	49	108	46	1932	720	177	866	53
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	133	231	206	518	384	325	59	1931	861	196	2014	898
Arrive On Green	0.07	0.13	0.13	0.15	0.21	0.21	0.03	0.54	0.54	0.06	0.57	0.57
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	111	49	55	500	49	108	46	1932	720	177	866	53
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	9.2	3.7	4.7	21.6	3.2	8.7	3.8	81.5	57.0	7.6	20.9	2.2
Cycle Q Clear(g_c), s	9.2	3.7	4.7	21.6	3.2	8.7	3.8	81.5	57.0	7.6	20.9	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	133	231	206	518	384	325	59	1931	861	196	2014	898
V/C Ratio(X)	0.83	0.21	0.27	0.96	0.13	0.33	0.77	1.00	0.84	0.90	0.43	0.06
Avail Cap(c_a), veh/h	208	231	206	518	384	325	113	1931	861	196	2014	898
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.5	58.4	58.8	63.4	48.7	50.9	71.9	34.3	28.7	70.3	18.6	14.6
Incr Delay (d2), s/veh	15.0	2.1	3.2	30.6	0.7	2.7	19.0	20.6	7.2	38.7	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	1.8	2.1	11.6	1.6	3.7	2.1	39.2	22.7	4.4	8.6	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	83.5	60.5	62.0	93.9	49.3	53.6	90.9	54.9	35.9	109.1	18.8	14.6
LnGrp LOS	F	E	E	F	D	D	F	F	D	F	B	B
Approach Vol, veh/h	215			657			2698			1096		
Approach Delay, s/veh	72.7			84.0			50.4			33.1		
Approach LOS	E			F			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), \$5.7	35.3	13.0	86.0	27.0	24.0	9.5	89.5					
Change Period (Y+Rc), s 4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5					
Max Green Setting (Gmax), s 7.5	24.5	8.5	81.5	22.5	19.5	9.5	80.5					
Max Q Clear Time (g_c+I1), s 11.2	10.7	9.6	83.5	23.6	6.7	5.8	22.9					
Green Ext Time (p_c), s 0.1	0.4	0.0	0.0	0.0	0.4	0.0	7.5					
Intersection Summary												
HCM 6th Ctrl Delay	52.1											
HCM 6th LOS	D											

Intersection						
Int Delay, s/veh	414.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	514	514	802	611	100	1298
Future Vol, veh/h	514	514	802	611	100	1298
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	553	553	862	657	108	1396
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2803	1191	0	0	1519	0
Stage 1	1191	-	-	-	-	-
Stage 2	1612	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 20	~ 228	-	-	439	-
Stage 1	~ 288	-	-	-	-	-
Stage 2	~ 179	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 15	~ 228	-	-	439	-
Mov Cap-2 Maneuver	~ 90	-	-	-	-	-
Stage 1	~ 288	-	-	-	-	-
Stage 2	~ 135	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, \$	1546.4		0		1.1	
HCM LOS	F					
Minor Lane/Major Mvmt	NBT		NBRWBLn1WBLn2		SBL	SBT
Capacity (veh/h)	-		- 90 228		439	-
HCM Lane V/C Ratio	-		- 6.141 2.424		0.245	-
HCM Control Delay (s)	-		\$ 2405.3\$ 687.5		15.8	-
HCM Lane LOS	-		F F		C	-
HCM 95th %tile Q(veh)	-		61.2 45.2		1	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	1316.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	331	300	488	576	260	254
Future Vol, veh/h	331	300	488	576	260	254
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	356	323	525	619	280	273
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1949	280	553	0	-	0
Stage 1	280	-	-	-	-	-
Stage 2	1669	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 71	759	1017	-	-	-
Stage 1	767	-	-	-	-	-
Stage 2	~ 168	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 34	759	1017	-	-	-
Mov Cap-2 Maneuver	~ 34	-	-	-	-	-
Stage 1	371	-	-	-	-	-
Stage 2	~ 168	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, \$	4600.6	5.6		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1017	-	62	-	-	
HCM Lane V/C Ratio	0.516	-	10.943	-	-	
HCM Control Delay (s)	12.2	-	\$ 4600.6	-	-	
HCM Lane LOS	B	-	F	-	-	
HCM 95th %tile Q(veh)	3	-	80.2	-	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 6th Signalized Intersection Summary

High Growth - 2030 PM

1: US 95 A/East St & Main St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	950	545	596	593	11	342	11	414	26	9	0
Future Volume (veh/h)	0	950	545	596	593	11	342	11	414	26	9	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1000	574	627	624	12	360	12	436	27	9	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	3	613	352	120	1006	19	541	13	465	126	28	0
Arrive On Green	0.00	0.55	0.55	0.55	0.55	0.55	0.30	0.30	0.30	0.30	0.30	0.00
Sat Flow, veh/h	1853	1115	640	339	1829	35	1406	43	1549	69	92	0
Grp Volume(v), veh/h	0	0	1574	627	0	636	360	0	448	36	0	0
Grp Sat Flow(s),veh/h/ln	1853	0	1755	339	0	1864	1406	0	1592	162	0	0
Q Serve(g_s), s	0.0	0.0	33.0	0.0	0.0	14.0	0.0	0.0	16.5	0.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	33.0	33.0	0.0	14.0	14.5	0.0	16.5	17.3	0.0	0.0
Prop In Lane	1.00		0.36	1.00		0.02	1.00		0.97	0.75		0.00
Lane Grp Cap(c), veh/h	3	0	965	120	0	1025	541	0	477	153	0	0
V/C Ratio(X)	0.00	0.00	1.63	5.22	0.00	0.62	0.66	0.00	0.94	0.23	0.00	0.00
Avail Cap(c_a), veh/h	154	0	965	120	0	1025	541	0	477	153	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	13.5	30.0	0.0	9.2	19.8	0.0	20.5	19.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	288.5	1919.6	0.0	1.2	6.3	0.0	28.4	3.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	87.7	65.7	0.0	5.0	5.3	0.0	9.4	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	302.0	1949.6	0.0	10.4	26.1	0.0	48.8	22.9	0.0	0.0
LnGrp LOS	A	A	F	F	A	B	C	A	D	C	A	A
Approach Vol, veh/h	1574			1263			808			36		
Approach Delay, s/veh	302.0			973.1			38.7			22.9		
Approach LOS	F			F			D			C		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	22.5			37.5			22.5			0.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			33.0			18.0			5.0		
Max Q Clear Time (g_c+I1), s	18.5			35.0			19.3			0.0		
Green Ext Time (p_c), s	0.0			0.0			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	471.7											
HCM 6th LOS	F											

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

High Growth - 2030 PM



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	86	80	716	394	40	143	445	1840	100	248	3133	123
Future Volume (veh/h)	86	80	716	394	40	143	445	1840	100	248	3133	123
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	89	82	577	406	41	116	459	1897	72	256	3230	96
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	46	325	179	119	336	208	1664	63	137	1539	46
Arrive On Green	0.06	0.23	0.23	0.10	0.26	0.26	0.12	0.48	0.48	0.08	0.44	0.44
Sat Flow, veh/h	1781	201	1415	1853	448	1268	1781	3492	132	1781	3524	104
Grp Volume(v), veh/h	89	0	659	406	0	157	459	959	1010	256	1620	1706
Grp Sat Flow(s),veh/h/ln	1781	0	1616	1853	0	1717	1781	1777	1847	1781	1777	1852
Q Serve(g_s), s	7.4	0.0	34.5	14.5	0.0	11.1	17.5	71.5	71.5	11.5	65.5	65.5
Cycle Q Clear(g_c), s	7.4	0.0	34.5	14.5	0.0	11.1	17.5	71.5	71.5	11.5	65.5	65.5
Prop In Lane	1.00		0.88	1.00		0.74	1.00		0.07	1.00		0.06
Lane Grp Cap(c), veh/h	110	0	372	179	0	455	208	847	880	137	776	809
V/C Ratio(X)	0.81	0.00	1.77	2.27	0.00	0.35	2.21	1.13	1.15	1.87	2.09	2.11
Avail Cap(c_a), veh/h	179	0	372	179	0	455	208	847	880	137	776	809
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.5	0.0	57.8	67.8	0.0	44.6	66.3	39.2	39.3	69.2	42.3	42.3
Incr Delay (d2), s/veh	13.1	0.0	358.8	587.7	0.0	2.1	559.3	74.3	79.5	420.0	494.2	503.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	51.2	36.2	0.0	5.1	40.2	47.7	50.9	21.2	134.5	142.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	82.6	0.0	416.5	655.4	0.0	46.7	625.5	113.5	118.7	489.3	536.4	545.7
LnGrp LOS	F	A	F	F	A	D	F	F	F	F	F	F
Approach Vol, veh/h	748				563		2428				3582	
Approach Delay, s/veh	376.8				485.7		212.5				537.5	
Approach LOS	F				F		F				F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	3.8	44.2	16.0	76.0	19.0	39.0	22.0	70.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	33.9	11.5	71.5	14.5	34.5	17.5	65.5				
Max Q Clear Time (g_c+I), s	19.4	13.1	13.5	73.5	16.5	36.5	19.5	67.5				
Green Ext Time (p_c), s	0.1	0.9	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 409.3

HCM 6th LOS F

Notes

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

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

High Growth - 2030 PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	157	80	143	1447	317	294	163	1107	805	374	1869	151
Future Volume (veh/h)	157	80	143	1447	317	294	163	1107	805	374	1869	151
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	165	84	151	1523	334	309	172	1165	847	394	1967	159
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	187	231	206	1002	589	499	125	1204	537	419	1386	618
Arrive On Green	0.11	0.13	0.13	0.29	0.31	0.31	0.07	0.34	0.34	0.12	0.39	0.39
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	165	84	151	1523	334	309	172	1165	847	394	1967	159
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	13.7	6.5	13.7	43.5	22.3	24.9	10.5	48.4	50.8	17.0	58.5	10.2
Cycle Q Clear(g_c), s	13.7	6.5	13.7	43.5	22.3	24.9	10.5	48.4	50.8	17.0	58.5	10.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	187	231	206	1002	589	499	125	1204	537	419	1386	618
V/C Ratio(X)	0.88	0.36	0.73	1.52	0.57	0.62	1.38	0.97	1.58	0.94	1.42	0.26
Avail Cap(c_a), veh/h	215	231	206	1002	589	499	125	1204	537	419	1386	618
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.2	59.6	62.7	53.2	42.9	43.7	69.8	48.8	49.6	65.4	45.8	31.0
Incr Delay (d2), s/veh	29.1	4.4	20.5	239.0	3.9	5.7	212.8	18.7	268.9	29.2	193.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	3.2	6.8	51.9	11.0	10.5	12.1	24.3	59.9	9.1	62.5	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	95.3	64.0	83.2	292.3	46.8	49.4	282.6	67.5	318.5	94.5	238.7	31.2
LnGrp LOS	F	E	F	F	D	D	F	E	F	F	F	C
Approach Vol, veh/h	400			2166			2184			2520		
Approach Delay, s/veh	84.2			219.8			181.8			203.1		
Approach LOS	F			F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.3	51.7	22.7	55.3	48.0	24.0	15.0	63.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	44.9	44.9	18.2	50.8	43.5	19.5	10.5	58.5				
Max Q Clear Time (g_c+11g_s), s	26.9	26.9	19.0	52.8	45.5	15.7	12.5	60.5				
Green Ext Time (p_c), s	0.1	2.9	0.0	0.0	0.0	0.5	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay				195.1								
HCM 6th LOS				F								

Intersection						
Int Delay, s/veh	6884.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	354	205	548	593	516	825
Future Vol, veh/h	354	205	548	593	516	825
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	381	220	589	638	555	887
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2905	908	0	0	1227	0
Stage 1	908	-	-	-	-	-
Stage 2	1997	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 17	334	-	-	568	-
Stage 1	393	-	-	-	-	-
Stage 2	~ 115	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	0	334	-	-	568	-
Mov Cap-2 Maneuver	~ 3	-	-	-	-	-
Stage 1	393	-	-	-	-	-
Stage 2	~ 3	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay (\$)	7398.9	0		22.8		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	3	334	568	-
HCM Lane V/C Ratio	-	126.882	0.66	0.977	-	-
HCM Control Delay (s)	-	\$ 59036.5	34.4	59.2	-	-
HCM Lane LOS	-	-	F	D	F	-
HCM 95th %tile Q(veh)	-	-	50.1	4.4	13.6	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	2707.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	394	459	285	511	927	294
Future Vol, veh/h	394	459	285	511	927	294
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	424	494	306	549	997	316
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2158	997	1313	0	-	0
Stage 1	997	-	-	-	-	-
Stage 2	1161	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 52	~ 296	527	-	-	-
Stage 1	~ 357	-	-	-	-	-
Stage 2	~ 298	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 22	~ 296	527	-	-	-
Mov Cap-2 Maneuver	~ 22	-	-	-	-	-
Stage 1	~ 150	-	-	-	-	-
Stage 2	~ 298	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, \$	9102.4	7.5		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	527	-	44	-	-	
HCM Lane V/C Ratio	0.582	-20.846		-	-	
HCM Control Delay (s)	20.9	\$ 9102.4		-	-	
HCM Lane LOS	C	-		F	-	
HCM 95th %tile Q(veh)	3.7	-		112.2	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 6th Signalized Intersection Summary

1: US 95 A/East St & Main St

High Growth - 2040 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	1140	777	962	1147	0	1236	7	1073	0	22	7
Future Volume (veh/h)	7	1140	777	962	1147	0	1236	7	1073	0	22	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	1213	827	1023	1220	0	1315	7	1141	0	23	7
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	17	518	353	131	765	0	579	3	530	0	463	141
Arrive On Green	0.01	0.50	0.50	0.41	0.41	0.00	0.34	0.34	0.34	0.00	0.34	0.34
Sat Flow, veh/h	1853	1036	707	215	1870	0	1380	10	1577	0	1376	419
Grp Volume(v), veh/h	7	0	2040	1023	1220	0	1315	0	1148	0	0	30
Grp Sat Flow(s),veh/h/ln	1853	0	1743	215	1870	0	1380	0	1587	0	0	1795
Q Serve(g_s), s	0.2	0.0	27.5	0.0	22.5	0.0	17.9	0.0	18.5	0.0	0.0	0.6
Cycle Q Clear(g_c), s	0.2	0.0	27.5	22.5	22.5	0.0	18.5	0.0	18.5	0.0	0.0	0.6
Prop In Lane	1.00		0.41	1.00		0.00	1.00		0.99	0.00		0.23
Lane Grp Cap(c), veh/h	17	0	872	131	765	0	579	0	534	0	0	604
V/C Ratio(X)	0.41	0.00	2.34	7.81	1.59	0.00	2.27	0.00	2.15	0.00	0.00	0.05
Avail Cap(c_a), veh/h	168	0	872	131	765	0	579	0	534	0	0	604
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	27.1	0.0	13.8	27.5	16.3	0.0	20.6	0.0	18.3	0.0	0.0	12.3
Incr Delay (d2), s/veh	15.0	0.0	606.8	3082.2	273.9	0.0	576.8	0.0	524.3	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	155.6	113.7	66.5	0.0	100.1	0.0	83.7	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	0.0	620.6	3109.7	290.2	0.0	597.4	0.0	542.5	0.0	0.0	12.5
LnGrp LOS	D	A	F	F	F	A	F	A	F	A	A	B
Approach Vol, veh/h	2047			2243			2463			30		
Approach Delay, s/veh	618.6			1576.1			571.8			12.5		
Approach LOS	F			F			F			B		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	23.0			32.0			23.0			5.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.5			27.5			18.5			5.0		
Max Q Clear Time (g_c+I1), s	20.5			29.5			2.6			2.2		
Green Ext Time (p_c), s	0.0			0.0			0.1			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	915.6											
HCM 6th LOS	F											

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

High Growth - 2040 AM



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	118	30	377	326	44	385	562	5942	259	259	3027	170
Future Volume (veh/h)	118	30	377	326	44	385	562	5942	259	259	3027	170
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	122	31	389	336	45	397	579	6126	267	267	3121	175
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	89	17	213	167	31	276	291	1955	85	148	1654	92
Arrive On Green	0.05	0.14	0.14	0.09	0.18	0.18	0.16	0.56	0.56	0.08	0.48	0.48
Sat Flow, veh/h	1781	118	1485	1853	170	1504	1781	3470	150	1781	3423	190
Grp Volume(v), veh/h	122	0	420	336	0	442	579	3115	3278	267	1606	1690
Grp Sat Flow(s),veh/h/ln	1781	0	1603	1853	0	1674	1781	1777	1843	1781	1777	1836
Q Serve(g_s), s	7.5	0.0	21.5	13.5	0.0	27.5	24.5	84.5	84.5	12.5	72.5	72.5
Cycle Q Clear(g_c), s	7.5	0.0	21.5	13.5	0.0	27.5	24.5	84.5	84.5	12.5	72.5	72.5
Prop In Lane	1.00		0.93	1.00		0.90	1.00		0.08	1.00		0.10
Lane Grp Cap(c), veh/h	89	0	230	167	0	307	291	1001	1038	148	859	887
V/C Ratio(X)	1.37	0.00	1.83	2.02	0.00	1.44	1.99	3.11	3.16	1.80	1.87	1.90
Avail Cap(c_a), veh/h	89	0	230	167	0	307	291	1001	1038	148	859	887
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.3	0.0	64.3	68.2	0.0	61.3	62.8	32.8	32.8	68.8	38.8	38.8
Incr Delay (d2), s/veh	222.4	0.0	389.1	477.4	0.0	215.5	457.6	952.8	973.3	384.9	395.8	411.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	33.7	28.6	0.0	30.2	48.0	299.5	316.6	21.5	125.0	133.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	293.7	0.0	453.3	545.6	0.0	276.8	520.4	985.6	1006.0	453.7	434.6	450.0
LnGrp LOS	F	A	F	F	A	F	F	F	F	F	F	F
Approach Vol, veh/h	542		778			6972			3563			
Approach Delay, s/veh	417.4		392.9			956.6			443.3			
Approach LOS	F		F			F			F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	2.0	32.0	17.0	89.0	18.0	26.0	29.0	77.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	27.5	12.5	84.5	13.5	21.5	24.5	72.5				
Max Q Clear Time (g_c+I), s	19.5	29.5	14.5	86.5	15.5	23.5	26.5	74.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	740.7											
HCM 6th LOS	F											

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

High Growth - 2040 AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	266	118	133	1206	118	259	111	4662	1739	429	2087	126
Future Volume (veh/h)	266	118	133	1206	118	259	111	4662	1739	429	2087	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	286	127	143	1297	127	278	119	5013	1870	461	2244	135
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	272	243	217	587	288	244	77	1789	798	242	1883	840
Arrive On Green	0.15	0.14	0.14	0.17	0.15	0.15	0.04	0.50	0.50	0.07	0.53	0.53
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	286	127	143	1297	127	278	119	5013	1870	461	2244	135
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	22.9	10.0	12.8	25.5	9.2	23.1	6.5	75.5	75.5	10.5	79.5	6.6
Cycle Q Clear(g_c), s	22.9	10.0	12.8	25.5	9.2	23.1	6.5	75.5	75.5	10.5	79.5	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	272	243	217	587	288	244	77	1789	798	242	1883	840
V/C Ratio(X)	1.05	0.52	0.66	2.21	0.44	1.14	1.54	2.80	2.34	1.91	1.19	0.16
Avail Cap(c_a), veh/h	272	243	217	587	288	244	77	1789	798	242	1883	840
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.5	60.2	61.4	62.3	57.6	63.5	71.8	37.3	37.3	69.8	35.3	18.1
Incr Delay (d2), s/veh	68.8	7.8	14.7	549.0	4.8	100.2	298.0	812.7	608.7	422.7	91.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	5.1	6.1	55.9	4.8	16.1	9.4	233.6	163.1	18.8	57.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	132.3	68.0	76.2	611.3	62.4	163.7	369.8	850.0	645.9	492.4	127.0	18.2
LnGrp LOS	F	E	E	F	E	F	F	F	F	F	F	B
Approach Vol, veh/h	556			1702			7002			2840		
Approach Delay, s/veh	103.2			497.2			787.3			181.1		
Approach LOS	F			F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.4	27.6	15.0	80.0	30.0	25.0	11.0	84.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	22.9	23.1	10.5	75.5	25.5	20.5	6.5	79.5				
Max Q Clear Time (g_c+Q), s	24.9	25.1	12.5	77.5	27.5	14.8	8.5	81.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	572.8											
HCM 6th LOS	F											

Intersection						
Int Delay, s/veh	60.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1332	1332	2079	1584	259	3367
Future Vol, veh/h	1332	1332	2079	1584	259	3367
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1432	1432	2235	1703	278	3620
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	7263	3087	0	0	3938	0
Stage 1	3087	-	-	-	-	-
Stage 2	4176	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	0	~ 16	-	-	~ 48	-
Stage 1	~ 31	-	-	-	-	-
Stage 2	~ 8	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	0	~ 16	-	-	~ 48	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	~ 31	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s		0		166.3		
HCM LOS	-					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	16	~ 48	-
HCM Lane V/C Ratio	-	-	-89.516		5.802	-
HCM Control Delay (s)	-	-	\$ 40288.5		\$ 2328	-
HCM Lane LOS	-	-	-	F	F	-
HCM 95th %tile Q(veh)	-	-	-	180	32.1	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	599.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	858	777	1265	1495	673	659
Future Vol, veh/h	858	777	1265	1495	673	659
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	923	835	1360	1608	724	709
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	5052	724	1433	0	-	0
Stage 1	724	-	-	-	-	-
Stage 2	4328	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 1	~ 426	~ 474	-	-	-
Stage 1	~ 480	-	-	-	-	-
Stage 2	~ 6	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	0	~ 426	~ 474	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	~ 6	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, \$	1431.6	\$ 396.7		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	~ 474	-	426	-	-	
HCM Lane V/C Ratio	2.87	-	4.127	-	-	
HCM Control Delay (s)	\$ 865.4	-	\$ 1431.6	-	-	
HCM Lane LOS	F	-	F	-	-	
HCM 95th %tile Q(veh)	115.2	-	170.4	-	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 6th Signalized Intersection Summary

High Growth - 2040 PM

1: US 95 A/East St & Main St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2464	1413	1547	1539	30	888	30	1073	67	22	0
Future Volume (veh/h)	0	2464	1413	1547	1539	30	888	30	1073	67	22	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	2594	1487	1628	1620	32	935	32	1129	71	23	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	3	558	320	131	914	18	606	15	521	115	22	0
Arrive On Green	0.00	0.50	0.50	0.50	0.50	0.50	0.34	0.34	0.34	0.34	0.34	0.00
Sat Flow, veh/h	1853	1116	640	27	1828	36	1388	44	1548	0	66	0
Grp Volume(v), veh/h	0	0	4081	1628	0	1652	935	0	1161	94	0	0
Grp Sat Flow(s),veh/h/ln	1853	0	1755	27	0	1864	1388	0	1592	66	0	0
Q Serve(g_s), s	0.0	0.0	27.5	0.0	0.0	27.5	0.0	0.0	18.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	27.5	27.5	0.0	27.5	18.5	0.0	18.5	18.5	0.0	0.0
Prop In Lane	1.00		0.36	1.00		0.02	1.00		0.97	0.76		0.00
Lane Grp Cap(c), veh/h	3	0	878	131	0	932	606	0	535	137	0	0
V/C Ratio(X)	0.00	0.00	4.65	12.44	0.00	1.77	1.54	0.00	2.17	0.69	0.00	0.00
Avail Cap(c_a), veh/h	168	0	878	131	0	932	606	0	535	137	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	13.8	27.5	0.0	13.8	20.2	0.0	18.3	23.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1645.1	5161.2	0.0	352.1	252.0	0.0	532.0	24.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	409.8	189.3	0.0	100.4	50.1	0.0	85.1	2.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	1658.9	5188.7	0.0	365.8	272.2	0.0	550.2	47.8	0.0	0.0
LnGrp LOS	A	A	F	F	A	F	F	A	F	D	A	A
Approach Vol, veh/h	4081			3280			2096			94		
Approach Delay, s/veh	1658.9			2759.6			426.2			47.8		
Approach LOS	F			F			F			D		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	23.0			32.0			23.0			0.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.5			27.5			18.5			5.0		
Max Q Clear Time (g_c+I1), s	20.5			29.5			20.5			0.0		
Green Ext Time (p_c), s	0.0			0.0			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	1750.5											
HCM 6th LOS	F											

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

High Growth - 2040 PM



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	222	207	1857	1021	104	370	1154	4773	259	644	8125	318
Future Volume (veh/h)	222	207	1857	1021	104	370	1154	4773	259	644	8125	318
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	229	213	1753	1053	107	350	1190	4921	236	664	8376	297
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	246	51	417	241	113	369	279	1255	60	172	1062	37
Arrive On Green	0.14	0.29	0.29	0.13	0.28	0.28	0.16	0.36	0.36	0.10	0.30	0.30
Sat Flow, veh/h	1781	175	1437	1853	400	1309	1781	3453	164	1781	3502	123
Grp Volume(v), veh/h	229	0	1966	1053	0	457	1190	2512	2645	664	4225	4448
Grp Sat Flow(s),veh/h/ln	1781	0	1612	1853	0	1710	1781	1777	1841	1781	1777	1848
Q Serve(g_s), s	19.1	0.0	43.5	19.5	0.0	39.3	23.5	54.5	54.5	14.5	45.5	45.5
Cycle Q Clear(g_c), s	19.1	0.0	43.5	19.5	0.0	39.3	23.5	54.5	54.5	14.5	45.5	45.5
Prop In Lane	1.00		0.89	1.00		0.77	1.00		0.09	1.00		0.07
Lane Grp Cap(c), veh/h	246	0	467	241	0	482	279	646	669	172	539	561
V/C Ratio(X)	0.93	0.00	4.21	4.37	0.00	0.95	4.26	3.89	3.95	3.86	7.84	7.93
Avail Cap(c_a), veh/h	246	0	467	241	0	482	279	646	669	172	539	561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.9	0.0	53.3	65.2	0.0	52.8	63.3	47.7	47.8	67.8	52.3	52.3
Incr Delay (d2), s/veh	39.2	0.0	1447.9	1527.2	0.0	29.9	1477.3	1305.0	1333.0	1299.2	3081.6	3123.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	205.7	111.5	0.0	21.0	125.1	257.8	272.2	68.7	481.4	507.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	103.1	0.0	1501.1	1592.4	0.0	82.7	1540.5	1352.7	1380.7	1367.0	3133.9	3176.1
LnGrp LOS	F	A	F	F	A	F	F	F	F	F	F	F
Approach Vol, veh/h	2195		1510			6347			9337			
Approach Delay, s/veh	1355.3		1135.5			1399.6			3028.3			
Approach LOS	F		F			F			F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.2	46.8	19.0	59.0	24.0	48.0	28.0	50.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	20.7	42.3	14.5	54.5	19.5	43.5	23.5	45.5				
Max Q Clear Time (g_c+Y), s	21.1	41.3	16.5	56.5	21.5	45.5	25.5	47.5				
Green Ext Time (p_c), s	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 2158.3

HCM 6th LOS F

Notes

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

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

High Growth - 2040 PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	407	207	370	3752	821	762	422	2871	2087	969	4847	392
Future Volume (veh/h)	407	207	370	3752	821	762	422	2871	2087	969	4847	392
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	428	218	389	3949	864	802	444	3022	2197	1020	5102	413
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	148	243	217	1025	655	555	160	1244	555	334	1267	565
Arrive On Green	0.08	0.14	0.14	0.30	0.35	0.35	0.09	0.35	0.35	0.10	0.36	0.36
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	428	218	389	3949	864	802	444	3022	2197	1020	5102	413
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	12.5	18.1	20.5	44.5	52.5	52.5	13.5	52.5	52.5	14.5	53.5	34.0
Cycle Q Clear(g_c), s	12.5	18.1	20.5	44.5	52.5	52.5	13.5	52.5	52.5	14.5	53.5	34.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	148	243	217	1025	655	555	160	1244	555	334	1267	565
V/C Ratio(X)	2.88	0.90	1.80	3.85	1.32	1.45	2.77	2.43	3.96	3.05	4.03	0.73
Avail Cap(c_a), veh/h	148	243	217	1025	655	555	160	1244	555	334	1267	565
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.8	63.7	64.8	52.8	48.8	48.8	68.3	48.8	48.8	67.8	48.2	42.0
Incr Delay (d2), s/veh	865.7	36.4	375.9	1285.7	154.5	210.6	813.5	645.8	1336.4	932.0	1363.3	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/h	11.4	10.7	31.0	202.2	52.2	52.9	42.4	134.5	226.4	49.6	263.3	14.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	934.4	100.1	440.7	1338.5	203.2	259.3	881.7	694.6	1385.2	999.7	1411.5	46.8
LnGrp LOS	F	F	F	F	F	F	F	F	F	F	F	D
Approach Vol, veh/h	1035			5615			5663			6535		
Approach Delay, s/veh	573.1			1009.7			977.2			1261.0		
Approach LOS	F			F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	57.0	19.0	57.0	49.0	25.0	18.0	58.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	12.5	52.5	14.5	52.5	44.5	20.5	13.5	53.5				
Max Q Clear Time (g_c+14.5), s	14.5	54.5	16.5	54.5	46.5	22.5	15.5	55.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	1063.1											
HCM 6th LOS	F											

Intersection

Int Delay, s/veh 1071.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	918	533	1421	1539	1339	2139
Future Vol, veh/h	918	533	1421	1539	1339	2139
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	987	573	1528	1655	1440	2300

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	7536	2356	0
Stage 1	2356	-	-
Stage 2	5180	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	0	~ 45	-
Stage 1	~ 75	-	-
Stage 2	~ 2	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	0	~ 45	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	~ 75	-	-
Stage 2	0	-	-

Approach	WB	NB	SB
HCM Control Delay, s		0	\$ 2429.7
HCM LOS	-		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	45	~ 97
HCM Lane V/C Ratio	-	-	12.736	14.843
HCM Control Delay (s)	-	-	\$ 5451.5	\$ 6311.1
HCM Lane LOS	-	-	F	F
HCM 95th %tile Q(veh)	-	-	69.1	171

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	9986.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1021	1191	740	1325	2405	762
Future Vol, veh/h	1021	1191	740	1325	2405	762
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1098	1281	796	1425	2586	819
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	5603	2586	3405	0	-	0
Stage 1	2586	-	-	-	-	-
Stage 2	3017	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	0	~ 33	~ 79	-	-	-
Stage 1	~ 57	-	-	-	-	-
Stage 2	~ 34	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	0	~ 33	~ 79	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	~ 34	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay (\$)	2208.4	\$ 1499		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	~ 79	-	33	-	-	
HCM Lane V/C Ratio	10.072	- 72.076		-	-	
HCM Control Delay (s)	\$ 4183	\$ 32208.4		-	-	
HCM Lane LOS	F	-	F	-	-	
HCM 95th %tile Q(veh)	92.8	-	296.2	-	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

APPENDIX L

SCENARIO 3 INDUSTRIAL FOCUSED GROWTH ANALYSIS REPORTS



HCM 6th Signalized Intersection Summary

1: US 95 A/East St & Main St

Industrial Growth - 2025 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	206	141	174	208	0	224	1	194	0	4	1
Future Volume (veh/h)	1	206	141	174	208	0	224	1	194	0	4	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	219	150	185	221	0	238	1	206	0	4	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	408	279	403	549	0	731	3	643	0	589	147
Arrive On Green	0.00	0.39	0.39	0.29	0.29	0.00	0.41	0.41	0.41	0.00	0.41	0.41
Sat Flow, veh/h	1853	1034	708	1054	1870	0	1411	8	1579	0	1444	361
Grp Volume(v), veh/h	1	0	369	185	221	0	238	0	207	0	0	5
Grp Sat Flow(s),veh/h/ln	1853	0	1743	1054	1870	0	1411	0	1586	0	0	1805
Q Serve(g_s), s	0.0	0.0	7.4	7.4	4.3	0.0	5.5	0.0	4.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.0	0.0	7.4	10.3	4.3	0.0	5.5	0.0	4.0	0.0	0.0	0.1
Prop In Lane	1.00		0.41	1.00		0.00	1.00		1.00	0.00		0.20
Lane Grp Cap(c), veh/h	4	0	687	403	549	0	731	0	646	0	0	736
V/C Ratio(X)	0.25	0.00	0.54	0.46	0.40	0.00	0.33	0.00	0.32	0.00	0.00	0.01
Avail Cap(c_a), veh/h	204	0	1056	511	742	0	731	0	646	0	0	736
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	22.6	0.0	10.6	16.3	12.8	0.0	9.6	0.0	9.2	0.0	0.0	8.0
Incr Delay (d2), s/veh	28.5	0.0	0.7	0.8	0.5	0.0	1.2	0.0	1.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	2.5	1.7	1.6	0.0	1.6	0.0	1.4	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.2	0.0	11.2	17.1	13.3	0.0	10.8	0.0	10.5	0.0	0.0	8.0
LnGrp LOS	D	A	B	B	B	A	B	A	B	A	A	A
Approach Vol, veh/h	370			406			445			5		
Approach Delay, s/veh	11.3			15.0			10.7			8.0		
Approach LOS	B			B			B			A		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	23.0			22.4			23.0			4.6		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.5			27.5			18.5			5.0		
Max Q Clear Time (g_c+I1), s	7.5			9.4			2.1			2.0		
Green Ext Time (p_c), s	1.6			2.3			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay			12.3									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

Industrial Growth - 2025 AM



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	24	6	77	66	9	78	114	1205	53	53	614	35
Future Volume (veh/h)	24	6	77	66	9	78	114	1205	53	53	614	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	6	79	68	9	80	118	1242	55	55	633	36
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	29	383	96	48	424	152	1357	60	83	1206	69
Arrive On Green	0.03	0.26	0.26	0.05	0.28	0.28	0.09	0.39	0.39	0.05	0.35	0.35
Sat Flow, veh/h	1781	113	1489	1853	169	1505	1781	3466	153	1781	3418	194
Grp Volume(v), veh/h	25	0	85	68	0	89	118	636	661	55	329	340
Grp Sat Flow(s),veh/h/ln	1781	0	1602	1853	0	1674	1781	1777	1843	1781	1777	1835
Q Serve(g_s), s	1.0	0.0	3.0	2.6	0.0	2.9	4.6	24.2	24.2	2.2	10.5	10.5
Cycle Q Clear(g_c), s	1.0	0.0	3.0	2.6	0.0	2.9	4.6	24.2	24.2	2.2	10.5	10.5
Prop In Lane	1.00		0.93	1.00		0.90	1.00		0.08	1.00		0.11
Lane Grp Cap(c), veh/h	49	0	412	96	0	472	152	696	721	83	627	648
V/C Ratio(X)	0.51	0.00	0.21	0.71	0.00	0.19	0.78	0.91	0.92	0.66	0.52	0.53
Avail Cap(c_a), veh/h	128	0	412	133	0	472	268	712	738	128	627	648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	0.0	20.7	33.2	0.0	19.4	31.9	20.5	20.5	33.4	18.3	18.3
Incr Delay (d2), s/veh	8.1	0.0	1.1	9.9	0.0	0.9	8.3	16.2	16.0	8.7	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.2	1.4	0.0	1.2	2.2	12.0	12.4	1.1	4.0	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	0.0	21.9	43.1	0.0	20.3	40.2	36.8	36.5	42.1	19.1	19.1
LnGrp LOS	D	A	C	D	A	C	D	D	D	D	B	B
Approach Vol, veh/h	110				157		1415				724	
Approach Delay, s/veh	26.5				30.2		37.0				20.8	
Approach LOS	C				C		D				C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	24.5	7.8	32.4	8.2	22.8	10.6	29.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	18.3	5.1	28.5	5.1	18.3	10.7	22.9				
Max Q Clear Time (g_c+13, s)	4.9	4.9	4.2	26.2	4.6	5.0	6.6	12.5				
Green Ext Time (p_c), s	0.0	0.3	0.0	1.6	0.0	0.3	0.1	2.9				

Intersection Summary

HCM 6th Ctrl Delay	31.2
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

Industrial Growth - 2025 AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	54	24	27	245	24	53	23	945	353	87	423	26
Future Volume (veh/h)	54	24	27	245	24	53	23	945	353	87	423	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	58	26	29	263	26	57	25	1016	380	94	455	28
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	87	489	436	325	600	508	49	1101	491	209	1218	543
Arrive On Green	0.05	0.28	0.28	0.09	0.32	0.32	0.03	0.31	0.31	0.06	0.34	0.34
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	58	26	29	263	26	57	25	1016	380	94	455	28
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	2.2	0.7	0.9	5.2	0.7	1.8	1.0	19.1	15.0	1.8	6.7	0.8
Cycle Q Clear(g_c), s	2.2	0.7	0.9	5.2	0.7	1.8	1.0	19.1	15.0	1.8	6.7	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	87	489	436	325	600	508	49	1101	491	209	1218	543
V/C Ratio(X)	0.67	0.05	0.07	0.81	0.04	0.11	0.51	0.92	0.77	0.45	0.37	0.05
Avail Cap(c_a), veh/h	168	489	436	325	600	508	129	1106	493	250	1218	543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	18.4	18.5	30.7	16.2	16.5	33.1	23.0	21.6	31.3	17.1	15.2
Incr Delay (d2), s/veh	8.6	0.2	0.3	14.1	0.1	0.4	7.9	12.5	7.5	1.5	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.3	0.4	2.7	0.3	0.6	0.5	9.1	6.1	0.8	2.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.9	18.6	18.8	44.8	16.3	17.0	41.0	35.6	29.1	32.9	17.3	15.2
LnGrp LOS	D	B	B	D	B	B	D	D	C	C	B	B
Approach Vol, veh/h	113			346			1421			577		
Approach Delay, s/veh	30.1			38.1			33.9			19.7		
Approach LOS	C			D			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.9	26.6	8.7	25.9	11.0	23.5	6.4	28.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.0	19.0	5.0	21.5	6.5	19.0	5.0	21.5				
Max Q Clear Time (g_c+I), s	14.2	3.8	3.8	21.1	7.2	2.9	3.0	8.7				
Green Ext Time (p_c), s	0.0	0.2	0.0	0.3	0.0	0.2	0.0	2.4				
Intersection Summary												
HCM 6th Ctrl Delay			31.0									
HCM 6th LOS			C									

Intersection						
Int Delay, s/veh	11					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	241	241	377	287	47	610
Future Vol, veh/h	241	241	377	287	47	610
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	259	259	405	309	51	656
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1318	560	0	0	714	0
Stage 1	560	-	-	-	-	-
Stage 2	758	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 173	528	-	-	886	-
Stage 1	572	-	-	-	-	-
Stage 2	463	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 163	528	-	-	886	-
Mov Cap-2 Maneuver	298	-	-	-	-	-
Stage 1	572	-	-	-	-	-
Stage 2	436	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	40.3	0		0.7		
HCM LOS	E					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	298	528	886	-
HCM Lane V/C Ratio	-	-	0.87	0.491	0.057	-
HCM Control Delay (s)	-	-	62.5	18.2	9.3	-
HCM Lane LOS	-	-	F	C	A	-
HCM 95th %tile Q(veh)	-	-	7.7	2.7	0.2	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	15.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	155	141	229	271	122	119
Future Vol, veh/h	155	141	229	271	122	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	167	152	246	291	131	128
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	914	131	259	0	-	0
Stage 1	131	-	-	-	-	-
Stage 2	783	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	303	919	1306	-	-	-
Stage 1	895	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	246	919	1306	-	-	-
Mov Cap-2 Maneuver	246	-	-	-	-	-
Stage 1	727	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	48.8	3.8		0		
HCM LOS	E					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1306	-	378	-	-	
HCM Lane V/C Ratio	0.189	-	0.842	-	-	
HCM Control Delay (s)	8.4	-	48.8	-	-	
HCM Lane LOS	A	-	E	-	-	
HCM 95th %tile Q(veh)	0.7	-	7.8	-	-	

HCM 6th Signalized Intersection Summary

Industrial Growth - 2025 PM

1: US 95 A/East St & Main St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	446	256	280	279	5	161	5	194	12	4	0
Future Volume (veh/h)	0	446	256	280	279	5	161	5	194	12	4	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	469	269	295	294	5	169	5	204	13	4	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	3	688	395	356	1131	19	471	10	396	230	59	0
Arrive On Green	0.00	0.62	0.62	0.62	0.62	0.62	0.26	0.26	0.26	0.26	0.26	0.00
Sat Flow, veh/h	1853	1115	640	749	1834	31	1412	38	1553	549	233	0
Grp Volume(v), veh/h	0	0	738	295	0	299	169	0	209	17	0	0
Grp Sat Flow(s),veh/h/ln	1853	0	1755	749	0	1865	1412	0	1591	782	0	0
Q Serve(g_s), s	0.0	0.0	19.6	23.9	0.0	5.2	0.0	0.0	7.9	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	19.6	43.5	0.0	5.2	6.7	0.0	7.9	8.0	0.0	0.0
Prop In Lane	1.00		0.36	1.00		0.02	1.00		0.98	0.76		0.00
Lane Grp Cap(c), veh/h	3	0	1083	356	0	1151	471	0	406	290	0	0
V/C Ratio(X)	0.00	0.00	0.68	0.83	0.00	0.26	0.36	0.00	0.51	0.06	0.00	0.00
Avail Cap(c_a), veh/h	131	0	1320	356	0	1151	471	0	406	290	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	8.9	25.0	0.0	6.2	22.1	0.0	22.5	20.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.1	14.9	0.0	0.1	2.1	0.0	4.6	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	6.5	6.5	0.0	1.8	2.5	0.0	3.4	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	10.0	39.9	0.0	6.3	24.2	0.0	27.1	20.5	0.0	0.0
LnGrp LOS	A	A	B	D	A	A	C	A	C	C	A	A
Approach Vol, veh/h	738			594			378			17		
Approach Delay, s/veh	10.0			23.0			25.8			20.5		
Approach LOS	B			C			C			C		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	22.5			48.0			22.5			0.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			53.0			18.0			5.0		
Max Q Clear Time (g_c+I1), s	9.9			21.6			10.0			0.0		
Green Ext Time (p_c), s	1.2			6.8			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	18.0											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

Industrial Growth - 2025 PM



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	45	42	377	207	21	75	234	968	53	131	1648	65
Future Volume (veh/h)	45	42	377	207	21	75	234	968	53	131	1648	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	43	228	213	22	46	241	998	24	135	1699	36
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	44	231	197	136	284	240	1795	43	160	1639	35
Arrive On Green	0.03	0.17	0.17	0.11	0.24	0.24	0.13	0.51	0.51	0.09	0.46	0.46
Sat Flow, veh/h	1781	258	1367	1853	561	1173	1781	3547	85	1781	3558	75
Grp Volume(v), veh/h	46	0	271	213	0	68	241	500	522	135	846	889
Grp Sat Flow(s),veh/h/ln	1781	0	1624	1853	0	1734	1781	1777	1855	1781	1777	1857
Q Serve(g_s), s	3.6	0.0	23.3	14.9	0.0	4.3	18.9	27.1	27.1	10.5	64.5	64.5
Cycle Q Clear(g_c), s	3.6	0.0	23.3	14.9	0.0	4.3	18.9	27.1	27.1	10.5	64.5	64.5
Prop In Lane	1.00		0.84	1.00		0.68	1.00		0.05	1.00		0.04
Lane Grp Cap(c), veh/h	59	0	275	197	0	420	240	899	939	160	819	855
V/C Ratio(X)	0.77	0.00	0.99	1.08	0.00	0.16	1.00	0.56	0.56	0.85	1.03	1.04
Avail Cap(c_a), veh/h	117	0	275	197	0	420	240	899	939	240	819	855
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.1	0.0	58.0	62.5	0.0	41.8	60.6	23.8	23.8	62.8	37.8	37.8
Incr Delay (d2), s/veh	18.9	0.0	50.7	87.1	0.0	0.8	58.6	0.8	0.7	15.7	40.5	41.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	13.5	11.8	0.0	2.0	12.4	11.4	11.9	5.4	36.3	38.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.1	0.0	108.7	149.7	0.0	42.6	119.1	24.5	24.5	78.5	78.3	79.0
LnGrp LOS	F	A	F	F	A	D	F	C	C	E	F	F
Approach Vol, veh/h	317				281		1263				1870	
Approach Delay, s/veh	105.4				123.8		42.6				78.6	
Approach LOS	F				F		D				E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	38.4	17.0	75.4	19.4	28.2	23.4	69.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.2	29.4	18.9	64.5	14.9	23.7	18.9	64.5				
Max Q Clear Time (g_c+1.5), s	15.6	6.3	12.5	29.1	16.9	25.3	20.9	66.5				
Green Ext Time (p_c), s	0.0	0.3	0.2	7.7	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	72.1
HCM 6th LOS	E

Notes

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

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

Industrial Growth - 2025 PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	83	42	75	761	167	155	86	582	423	197	983	80
Future Volume (veh/h)	83	42	75	761	167	155	86	582	423	197	983	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	44	79	801	176	163	91	613	445	207	1035	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	112	365	326	826	714	605	109	977	436	279	1046	467
Arrive On Green	0.06	0.21	0.21	0.24	0.38	0.38	0.06	0.27	0.27	0.08	0.29	0.29
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	87	44	79	801	176	163	91	613	445	207	1035	84
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	4.3	1.8	3.8	20.7	5.8	6.4	4.5	13.6	24.7	5.3	26.1	3.6
Cycle Q Clear(g_c), s	4.3	1.8	3.8	20.7	5.8	6.4	4.5	13.6	24.7	5.3	26.1	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	112	365	326	826	714	605	109	977	436	279	1046	467
V/C Ratio(X)	0.78	0.12	0.24	0.97	0.25	0.27	0.84	0.63	1.02	0.74	0.99	0.18
Avail Cap(c_a), veh/h	198	365	326	826	714	605	109	977	436	299	1046	467
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	29.1	29.9	33.9	19.0	19.2	41.8	28.6	32.6	40.4	31.6	23.7
Incr Delay (d2), s/veh	10.9	0.7	1.8	24.2	0.8	1.1	40.4	1.3	48.7	8.9	25.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.8	1.6	11.1	2.6	2.4	3.2	5.7	14.9	2.5	14.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	29.8	31.7	58.1	19.8	20.3	82.2	29.9	81.3	49.3	56.7	23.8
LnGrp LOS	D	C	C	E	B	C	F	C	F	D	E	C
Approach Vol, veh/h	210			1140			1149			1326		
Approach Delay, s/veh	39.9			46.8			54.0			53.5		
Approach LOS	D			D			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	38.8	11.8	29.2	26.0	23.0	10.0	31.0					
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5					
Max Green Setting (Gmax), s	30.0	7.8	24.2	21.5	18.5	5.5	26.5					
Max Q Clear Time (g_c+10), s	8.4	7.3	26.7	22.7	5.8	6.5	28.1					
Green Ext Time (p_c), s	0.1	1.4	0.0	0.0	0.0	0.5	0.0					
Intersection Summary												
HCM 6th Ctrl Delay	50.9											
HCM 6th LOS	D											

Intersection						
Int Delay, s/veh	10					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	166	96	257	279	243	387
Future Vol, veh/h	166	96	257	279	243	387
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	178	103	276	300	261	416
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1364	426	0	0	576	0
Stage 1	426	-	-	-	-	-
Stage 2	938	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 163	628	-	-	997	-
Stage 1	659	-	-	-	-	-
Stage 2	381	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 120	628	-	-	997	-
Mov Cap-2 Maneuver	223	-	-	-	-	-
Stage 1	659	-	-	-	-	-
Stage 2	281	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	45.4	0		3.8		
HCM LOS	E					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	223	628	997	-
HCM Lane V/C Ratio	-	-	0.8	0.164	0.262	-
HCM Control Delay (s)	-	-	64.7	11.9	9.9	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	5.9	0.6	1.1	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	54.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	185	216	134	240	436	138
Future Vol, veh/h	185	216	134	240	436	138
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	199	232	144	258	469	148
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1015	469	617	0	-	0
Stage 1	469	-	-	-	-	-
Stage 2	546	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	264	594	963	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	224	594	963	-	-	-
Mov Cap-2 Maneuver	224	-	-	-	-	-
Stage 1	536	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	179.1	3.4		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	963	-	337	-	-	
HCM Lane V/C Ratio	0.15	-	1.279	-	-	
HCM Control Delay (s)	9.4	-	179.1	-	-	
HCM Lane LOS	A	-	F	-	-	
HCM 95th %tile Q(veh)	0.5	-	19.9	-	-	

HCM 6th Signalized Intersection Summary

Industrial Growth - 2030 AM

1: US 95 A/East St & Main St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	263	180	222	265	0	286	2	248	0	5	2
Future Volume (veh/h)	2	263	180	222	265	0	286	2	248	0	5	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	280	191	236	282	0	304	2	264	0	5	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	478	326	395	690	0	646	4	565	0	456	182
Arrive On Green	0.00	0.46	0.46	0.37	0.37	0.00	0.36	0.36	0.36	0.00	0.36	0.36
Sat Flow, veh/h	1853	1036	707	959	1870	0	1409	12	1575	0	1271	508
Grp Volume(v), veh/h	2	0	471	236	282	0	304	0	266	0	0	7
Grp Sat Flow(s),veh/h/ln	1853	0	1743	959	1870	0	1409	0	1587	0	0	1779
Q Serve(g_s), s	0.1	0.0	10.0	12.1	5.6	0.0	8.9	0.0	6.5	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.1	0.0	10.0	17.4	5.6	0.0	9.0	0.0	6.5	0.0	0.0	0.1
Prop In Lane	1.00		0.41	1.00		0.00	1.00		0.99	0.00		0.29
Lane Grp Cap(c), veh/h	5	0	804	395	690	0	646	0	570	0	0	639
V/C Ratio(X)	0.39	0.00	0.59	0.60	0.41	0.00	0.47	0.00	0.47	0.00	0.00	0.01
Avail Cap(c_a), veh/h	185	0	973	395	690	0	646	0	570	0	0	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	25.0	0.0	10.0	18.1	11.8	0.0	13.2	0.0	12.4	0.0	0.0	10.3
Incr Delay (d2), s/veh	43.0	0.0	0.7	2.5	0.4	0.0	2.5	0.0	2.7	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	3.3	2.6	2.1	0.0	2.9	0.0	2.4	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	0.0	10.6	20.6	12.1	0.0	15.7	0.0	15.1	0.0	0.0	10.4
LnGrp LOS	E	A	B	C	B	A	B	A	B	A	A	B
Approach Vol, veh/h	473			518			570			7		
Approach Delay, s/veh	10.9			16.0			15.4			10.4		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	22.5			27.6			22.5			4.6		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			28.0			18.0			5.0		
Max Q Clear Time (g_c+I1), s	11.0			12.0			2.1			2.1		
Green Ext Time (p_c), s	1.6			3.0			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	14.2											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

Industrial Growth - 2030 AM



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	34	8	107	93	13	109	160	1690	74	74	861	48
Future Volume (veh/h)	34	8	107	93	13	109	160	1690	74	74	861	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	8	110	96	13	112	165	1742	76	76	888	49
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	58	23	315	110	41	357	199	1646	71	97	1428	79
Arrive On Green	0.03	0.21	0.21	0.06	0.24	0.24	0.11	0.47	0.47	0.05	0.42	0.42
Sat Flow, veh/h	1781	109	1493	1853	174	1501	1781	3470	151	1781	3424	189
Grp Volume(v), veh/h	35	0	118	96	0	125	165	887	931	76	461	476
Grp Sat Flow(s),veh/h/ln	1781	0	1602	1853	0	1675	1781	1777	1843	1781	1777	1836
Q Serve(g_s), s	1.7	0.0	5.6	4.6	0.0	5.5	8.1	42.5	42.5	3.8	18.3	18.3
Cycle Q Clear(g_c), s	1.7	0.0	5.6	4.6	0.0	5.5	8.1	42.5	42.5	3.8	18.3	18.3
Prop In Lane	1.00		0.93	1.00		0.90	1.00		0.08	1.00		0.10
Lane Grp Cap(c), veh/h	58	0	338	110	0	398	199	843	874	97	741	766
V/C Ratio(X)	0.61	0.00	0.35	0.88	0.00	0.31	0.83	1.05	1.06	0.78	0.62	0.62
Avail Cap(c_a), veh/h	101	0	338	110	0	398	241	843	874	105	741	766
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	0.0	30.1	41.8	0.0	28.1	38.9	23.6	23.6	41.8	20.6	20.6
Incr Delay (d2), s/veh	9.8	0.0	2.8	49.6	0.0	2.1	17.8	45.9	49.1	28.6	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	2.4	3.6	0.0	2.4	4.4	26.7	28.5	2.4	7.4	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.6	0.0	32.9	91.4	0.0	30.2	56.8	69.4	72.7	70.4	22.2	22.1
LnGrp LOS	D	A	C	F	A	C	E	F	F	E	C	C
Approach Vol, veh/h	153				221		1983				1013	
Approach Delay, s/veh	37.4				56.8		69.9				25.8	
Approach LOS	D				E		E				C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	25.8	9.4	47.0	9.8	23.4	14.5	41.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.1	5.3	42.5	5.3	18.9	12.1	35.7					
Max Q Clear Time (g_c+13.7), s	7.5	5.8	44.5	6.6	7.6	10.1	20.3					
Green Ext Time (p_c), s	0.0	0.5	0.0	0.0	0.0	0.4	0.1	5.2				

Intersection Summary

HCM 6th Ctrl Delay	54.3
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

Industrial Growth - 2030 AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	76	34	38	343	34	74	32	1326	495	122	594	36
Future Volume (veh/h)	76	34	38	343	34	74	32	1326	495	122	594	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	37	41	369	37	80	34	1426	532	131	639	39
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	371	331	411	502	426	57	1480	660	192	1564	698
Arrive On Green	0.06	0.21	0.21	0.12	0.27	0.27	0.03	0.42	0.42	0.06	0.44	0.44
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	82	37	41	369	37	80	34	1426	532	131	639	39
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	4.1	1.5	1.9	9.5	1.3	3.5	1.7	35.2	26.5	3.3	11.0	1.3
Cycle Q Clear(g_c), s	4.1	1.5	1.9	9.5	1.3	3.5	1.7	35.2	26.5	3.3	11.0	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	106	371	331	411	502	426	57	1480	660	192	1564	698
V/C Ratio(X)	0.78	0.10	0.12	0.90	0.07	0.19	0.60	0.96	0.81	0.68	0.41	0.06
Avail Cap(c_a), veh/h	192	371	331	411	502	426	119	1481	661	192	1564	698
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	28.7	28.9	39.1	24.6	25.3	43.0	25.6	23.1	41.7	17.2	14.5
Incr Delay (d2), s/veh	11.4	0.5	0.8	21.9	0.3	1.0	9.8	15.5	7.3	9.5	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.7	0.8	5.2	0.6	1.4	0.9	16.8	10.5	1.6	4.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.1	29.3	29.7	61.0	24.8	26.3	52.8	41.1	30.3	51.2	17.4	14.5
LnGrp LOS	D	C	C	E	C	C	D	D	C	D	B	B
Approach Vol, veh/h	160				486		1992				809	
Approach Delay, s/veh	41.6				52.5		38.4				22.7	
Approach LOS	D				D		D				C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	28.7	9.5	42.0	15.2	23.3	7.4	44.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.8	19.8	5.0	37.5	10.7	18.8	6.0	36.5				
Max Q Clear Time (g_c+16, s)	5.5	5.5	5.3	37.2	11.5	3.9	3.7	13.0				
Green Ext Time (p_c), s	0.0	0.3	0.0	0.3	0.0	0.3	0.0	4.5				
Intersection Summary												
HCM 6th Ctrl Delay			36.9									
HCM 6th LOS			D									

Intersection						
Int Delay, s/veh	42.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	308	308	481	366	60	778
Future Vol, veh/h	308	308	481	366	60	778
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	331	331	517	394	65	837
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1681	714	0	0	911	0
Stage 1	714	-	-	-	-	-
Stage 2	967	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 104	431	-	-	748	-
Stage 1	485	-	-	-	-	-
Stage 2	369	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 95	431	-	-	748	-
Mov Cap-2 Maneuver	~ 223	-	-	-	-	-
Stage 1	485	-	-	-	-	-
Stage 2	337	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	158.5	0		0.7		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	223	431	748	-
HCM Lane V/C Ratio	-	-	1.485	0.768	0.086	-
HCM Control Delay (s)	-	-	281	36.1	10.3	-
HCM Lane LOS	-	-	F	E	B	-
HCM 95th %tile Q(veh)	-	-	19.8	6.5	0.3	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	88.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	198	180	292	345	156	152
Future Vol, veh/h	198	180	292	345	156	152
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	213	194	314	371	168	163
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1167	168	331	0	-	0
Stage 1	168	-	-	-	-	-
Stage 2	999	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	214	876	1228	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	356	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 159	876	1228	-	-	-
Mov Cap-2 Maneuver	~ 159	-	-	-	-	-
Stage 1	641	-	-	-	-	-
Stage 2	356	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s\$	303.5		4.1		0	
HCM LOS	F					
Minor Lane/Major Mvmt	NBL		NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1228		-	261	-	-
HCM Lane V/C Ratio	0.256		-	1.557	-	-
HCM Control Delay (s)	8.9		-\$ 303.5		-	-
HCM Lane LOS	A		-	F	-	-
HCM 95th %tile Q(veh)	1		-	24.4	-	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 6th Signalized Intersection Summary

1: US 95 A/East St & Main St

Industrial Growth - 2030 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	570	327	357	356	7	205	7	248	15	5	0
Future Volume (veh/h)	0	570	327	357	356	7	205	7	248	15	5	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	600	344	376	375	7	216	7	261	16	5	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1	855	490	357	1403	26	293	7	263	46	9	0
Arrive On Green	0.00	0.77	0.77	0.77	0.77	0.77	0.17	0.17	0.17	0.17	0.17	0.00
Sat Flow, veh/h	1853	1116	640	618	1830	34	1411	42	1550	7	51	0
Grp Volume(v), veh/h	0	0	944	376	0	382	216	0	268	21	0	0
Grp Sat Flow(s),veh/h/ln	1853	0	1755	618	0	1864	1411	0	1591	58	0	0
Q Serve(g_s), s	0.0	0.0	38.2	69.5	0.0	8.5	0.0	0.0	23.6	0.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	38.2	107.7	0.0	8.5	20.8	0.0	23.6	23.8	0.0	0.0
Prop In Lane	1.00		0.36	1.00		0.02	1.00		0.97	0.76		0.00
Lane Grp Cap(c), veh/h	1	0	1345	357	0	1429	293	0	270	55	0	0
V/C Ratio(X)	0.00	0.00	0.70	1.05	0.00	0.27	0.74	0.00	0.99	0.38	0.00	0.00
Avail Cap(c_a), veh/h	66	0	1464	357	0	1429	293	0	270	55	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	8.3	40.5	0.0	4.8	57.1	0.0	58.3	60.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.4	62.4	0.0	0.1	15.3	0.0	53.4	19.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	13.7	19.2	0.0	3.1	8.8	0.0	13.6	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	9.7	102.9	0.0	4.9	72.5	0.0	111.6	79.9	0.0	0.0
LnGrp LOS	A	A	A	F	A	A	E	A	F	E	A	A
Approach Vol, veh/h	944		758			484			21			
Approach Delay, s/veh	9.7		53.5			94.2			79.9			
Approach LOS	A		D			F			E			
Timer - Assigned Phs	2		4		6		7	8				
Phs Duration (G+Y+Rc), s	28.3		112.2		28.3		0.0	112.2				
Change Period (Y+Rc), s	4.5		4.5		4.5		4.5	4.5				
Max Green Setting (Gmax), s	23.8		117.2		23.8		5.0	107.7				
Max Q Clear Time (g_c+I1), s	25.6		40.2		25.8		0.0	109.7				
Green Ext Time (p_c), s	0.0		12.0		0.0		0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	43.9											
HCM 6th LOS	D											

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

Industrial Growth - 2030 PM



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	63	59	528	290	29	105	328	1358	74	183	2311	91
Future Volume (veh/h)	63	59	528	290	29	105	328	1358	74	183	2311	91
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	61	383	299	30	77	338	1400	45	189	2382	63
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	83	45	284	191	126	323	220	1600	51	210	1592	42
Arrive On Green	0.05	0.20	0.20	0.10	0.26	0.26	0.12	0.46	0.46	0.12	0.45	0.45
Sat Flow, veh/h	1781	222	1397	1853	483	1239	1781	3514	113	1781	3537	93
Grp Volume(v), veh/h	65	0	444	299	0	107	338	707	738	189	1191	1254
Grp Sat Flow(s),veh/h/ln	1781	0	1619	1853	0	1722	1781	1777	1850	1781	1777	1854
Q Serve(g_s), s	5.4	0.0	30.5	15.5	0.0	7.4	18.5	54.0	54.2	15.7	67.5	67.5
Cycle Q Clear(g_c), s	5.4	0.0	30.5	15.5	0.0	7.4	18.5	54.0	54.2	15.7	67.5	67.5
Prop In Lane	1.00		0.86	1.00		0.72	1.00		0.06	1.00		0.05
Lane Grp Cap(c), veh/h	83	0	329	191	0	448	220	809	842	210	800	834
V/C Ratio(X)	0.79	0.00	1.35	1.56	0.00	0.24	1.54	0.87	0.88	0.90	1.49	1.50
Avail Cap(c_a), veh/h	143	0	329	191	0	448	220	809	842	210	800	834
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.8	0.0	59.8	67.3	0.0	43.8	65.8	37.0	37.0	65.3	41.3	41.3
Incr Delay (d2), s/veh	15.0	0.0	175.8	276.8	0.0	1.3	263.8	10.4	10.3	35.9	227.0	232.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	28.7	22.1	0.0	3.4	24.5	25.3	26.4	9.2	79.2	83.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.8	0.0	235.6	344.0	0.0	45.0	329.6	47.4	47.3	101.2	268.3	274.0
LnGrp LOS	F	A	F	F	A	D	F	D	D	F	F	F
Approach Vol, veh/h	509				406		1783				2634	
Approach Delay, s/veh	216.4				265.2		100.8				259.0	
Approach LOS	F				F		F				F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	1.5	43.5	22.2	72.8	20.0	35.0	23.0	72.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	12.0	34.0	17.7	68.3	15.5	30.5	18.5	67.5				
Max Q Clear Time (g_c+17), s	17.5	9.4	17.7	56.2	17.5	32.5	20.5	69.5				
Green Ext Time (p_c), s	0.0	0.6	0.0	7.4	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 202.5

HCM 6th LOS F

Notes

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

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

Industrial Growth - 2030 PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	116	59	105	1067	234	217	120	817	594	276	1379	112
Future Volume (veh/h)	116	59	105	1067	234	217	120	817	594	276	1379	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	122	62	111	1123	246	228	126	860	625	291	1452	118
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	230	205	1048	657	557	126	1243	555	337	1339	597
Arrive On Green	0.08	0.13	0.13	0.30	0.35	0.35	0.07	0.35	0.35	0.10	0.38	0.38
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	122	62	111	1123	246	228	126	860	625	291	1452	118
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	10.1	4.7	9.8	45.5	14.7	16.3	10.6	31.1	52.5	12.4	56.5	7.5
Cycle Q Clear(g_c), s	10.1	4.7	9.8	45.5	14.7	16.3	10.6	31.1	52.5	12.4	56.5	7.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	145	230	205	1048	657	557	126	1243	555	337	1339	597
V/C Ratio(X)	0.84	0.27	0.54	1.07	0.37	0.41	1.00	0.69	1.13	0.86	1.08	0.20
Avail Cap(c_a), veh/h	220	230	205	1048	657	557	126	1243	555	371	1339	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.0	58.9	61.1	52.2	36.3	36.9	69.7	41.8	48.8	66.7	46.7	31.5
Incr Delay (d2), s/veh	16.3	2.9	9.9	49.0	1.6	2.2	80.5	1.7	78.2	17.5	51.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	2.3	4.6	26.6	7.1	6.7	7.6	13.9	32.5	6.3	34.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.3	61.8	71.0	101.2	38.0	39.1	150.2	43.5	127.0	84.2	97.8	31.6
LnGrp LOS	F	E	E	F	D	D	F	D	F	F	F	C
Approach Vol, veh/h	295			1597			1611			1861		
Approach Delay, s/veh	74.6			82.6			84.2			91.4		
Approach LOS	E			F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	57.2	19.1	57.0	50.0	23.9	15.1	61.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	46.4	16.1	51.0	45.5	19.4	10.6	56.5				
Max Q Clear Time (g_c+112, s)	18.3	18.3	14.4	54.5	47.5	11.8	12.6	58.5				
Green Ext Time (p_c), s	0.1	2.2	0.2	0.0	0.0	0.5	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay				85.7								
HCM 6th LOS				F								

Intersection						
Int Delay, s/veh	45.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	212	123	328	356	310	494
Future Vol, veh/h	212	123	328	356	310	494
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	228	132	353	383	333	531
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1742	545	0	0	736	0
Stage 1	545	-	-	-	-	-
Stage 2	1197	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 95	538	-	-	870	-
Stage 1	581	-	-	-	-	-
Stage 2	286	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 59	538	-	-	870	-
Mov Cap-2 Maneuver	~ 141	-	-	-	-	-
Stage 1	581	-	-	-	-	-
Stage 2	~ 176	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	235.3	0		4.5		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	141	538	870	-
HCM Lane V/C Ratio	-	-	1.617	0.246	0.383	-
HCM Control Delay (s)	-	-	\$ 363.8	13.9	11.7	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	16.2	1	1.8	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	203.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	236	275	171	306	556	176
Future Vol, veh/h	236	275	171	306	556	176
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	254	296	184	329	598	189
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1295	598	787	0	-	0
Stage 1	598	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 179	502	832	-	-	-
Stage 1	549	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 139	502	832	-	-	-
Mov Cap-2 Maneuver	~ 139	-	-	-	-	-
Stage 1	428	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s\$	681.2	3.8		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	832	-	228	-	-	
HCM Lane V/C Ratio	0.221	-	2.41	-	-	
HCM Control Delay (s)	10.6	-\$ 681.2		-	-	
HCM Lane LOS	B	-	F	-	-	
HCM 95th %tile Q(veh)	0.8	-	44.8	-	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 6th Signalized Intersection Summary

Industrial Growth - 2040 AM

1: US 95 A/East St & Main St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	429	293	362	432	0	465	3	404	0	8	3
Future Volume (veh/h)	3	429	293	362	432	0	465	3	404	0	8	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	456	312	385	460	0	495	3	430	0	9	3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	7	651	445	295	1111	0	476	3	487	0	415	138
Arrive On Green	0.00	0.63	0.63	0.59	0.59	0.00	0.31	0.31	0.31	0.00	0.31	0.31
Sat Flow, veh/h	1853	1035	708	728	1870	0	1402	11	1576	0	1342	447
Grp Volume(v), veh/h	3	0	768	385	460	0	495	0	433	0	0	12
Grp Sat Flow(s),veh/h/ln	1853	0	1743	728	1870	0	1402	0	1587	0	0	1790
Q Serve(g_s), s	0.2	0.0	42.5	49.0	19.3	0.0	44.3	0.0	37.7	0.0	0.0	0.7
Cycle Q Clear(g_c), s	0.2	0.0	42.5	86.5	19.3	0.0	45.0	0.0	37.7	0.0	0.0	0.7
Prop In Lane	1.00		0.41	1.00		0.00	1.00		0.99	0.00		0.25
Lane Grp Cap(c), veh/h	7	0	1096	295	1111	0	476	0	491	0	0	553
V/C Ratio(X)	0.41	0.00	0.70	1.31	0.41	0.00	1.04	0.00	0.88	0.00	0.00	0.02
Avail Cap(c_a), veh/h	64	0	1149	295	1111	0	476	0	491	0	0	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	72.3	0.0	17.9	52.4	15.9	0.0	52.9	0.0	47.8	0.0	0.0	35.0
Incr Delay (d2), s/veh	33.4	0.0	1.8	160.1	0.2	0.0	51.7	0.0	20.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	17.5	24.2	8.5	0.0	24.8	0.0	17.8	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	105.7	0.0	19.7	212.5	16.1	0.0	104.7	0.0	67.8	0.0	0.0	35.0
LnGrp LOS	F	A	B	F	B	A	F	A	E	A	A	D
Approach Vol, veh/h	771			845			928			12		
Approach Delay, s/veh	20.1			105.6			87.5			35.0		
Approach LOS	C			F			F			D		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	49.5			96.1			49.5			5.1		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	45.0			96.0			45.0			5.0		
Max Q Clear Time (g_c+I1), s	47.0			44.5			2.7			2.2		
Green Ext Time (p_c), s	0.0			7.9			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	72.9											
HCM 6th LOS	E											

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

Industrial Growth - 2040 AM



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	66	17	211	182	25	215	315	3325	145	145	1693	95
Future Volume (veh/h)	66	17	211	182	25	215	315	3325	145	145	1693	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	68	18	218	188	26	222	325	3428	149	149	1745	98
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	17	202	117	27	229	322	2140	92	113	1709	95
Arrive On Green	0.05	0.14	0.14	0.06	0.15	0.15	0.18	0.62	0.62	0.06	0.50	0.50
Sat Flow, veh/h	1781	122	1481	1853	176	1500	1781	3471	150	1781	3422	191
Grp Volume(v), veh/h	68	0	236	188	0	248	325	1743	1834	149	900	943
Grp Sat Flow(s),veh/h/ln	1781	0	1604	1853	0	1675	1781	1777	1843	1781	1777	1836
Q Serve(g_s), s	5.7	0.0	20.5	9.5	0.0	22.1	27.1	92.5	92.5	9.5	74.9	74.9
Cycle Q Clear(g_c), s	5.7	0.0	20.5	9.5	0.0	22.1	27.1	92.5	92.5	9.5	74.9	74.9
Prop In Lane	1.00		0.92	1.00		0.90	1.00		0.08	1.00		0.10
Lane Grp Cap(c), veh/h	84	0	219	117	0	256	322	1096	1137	113	887	917
V/C Ratio(X)	0.81	0.00	1.08	1.60	0.00	0.97	1.01	1.59	1.61	1.32	1.01	1.03
Avail Cap(c_a), veh/h	84	0	219	117	0	256	322	1096	1137	113	887	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.8	0.0	64.8	70.3	0.0	63.2	61.4	28.7	28.8	70.3	37.5	37.6
Incr Delay (d2), s/veh	41.9	0.0	82.7	307.1	0.0	49.0	52.7	270.0	280.3	193.4	33.7	37.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	13.5	14.6	0.0	13.0	16.9	118.9	126.6	10.4	39.8	42.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	112.6	0.0	147.4	377.3	0.0	112.2	114.1	298.8	309.0	263.6	71.3	74.9
LnGrp LOS	F	A	F	F	A	F	F	F	F	F	F	F
Approach Vol, veh/h	304				436		3902				1992	
Approach Delay, s/veh	139.6				226.5		288.2				87.4	
Approach LOS	F				F		F				F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	1.6	27.4	14.0	97.0	14.0	25.0	31.6	79.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	22.9	9.5	92.5	9.5	20.5	27.1	74.9					
Max Q Clear Time (g_c+11), s	24.1	11.5	94.5	11.5	22.5	29.1	76.9					
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0					

Intersection Summary

HCM 6th Ctrl Delay	217.0
HCM 6th LOS	F

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

Industrial Growth - 2040 AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	149	66	75	675	66	145	62	2609	973	240	1168	70
Future Volume (veh/h)	149	66	75	675	66	145	62	2609	973	240	1168	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	160	71	81	726	71	156	67	2805	1046	258	1256	75
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	243	217	495	332	281	85	1931	861	196	1963	875
Arrive On Green	0.10	0.14	0.14	0.14	0.18	0.18	0.05	0.54	0.54	0.06	0.55	0.55
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	160	71	81	726	71	156	67	2805	1046	258	1256	75
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	13.3	5.4	7.0	21.5	4.9	13.5	5.6	81.5	81.5	8.5	36.7	3.3
Cycle Q Clear(g_c), s	13.3	5.4	7.0	21.5	4.9	13.5	5.6	81.5	81.5	8.5	36.7	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	182	243	217	495	332	281	85	1931	861	196	1963	875
V/C Ratio(X)	0.88	0.29	0.37	1.47	0.21	0.55	0.79	1.45	1.21	1.32	0.64	0.09
Avail Cap(c_a), veh/h	210	243	217	495	332	281	145	1931	861	196	1963	875
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.4	58.2	58.9	64.3	52.7	56.3	70.7	34.3	34.2	70.8	23.3	15.8
Incr Delay (d2), s/veh	28.9	3.0	4.9	220.4	1.5	7.7	14.8	206.7	107.2	174.2	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	2.7	3.1	24.6	2.4	6.0	2.9	89.1	55.6	8.5	15.3	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	95.3	61.3	63.8	284.7	54.2	63.9	85.4	240.9	141.5	244.9	24.0	15.8
LnGrp LOS	F	E	E	F	D	E	F	F	F	F	C	B
Approach Vol, veh/h	312			953			3918			1589		
Approach Delay, s/veh	79.4			231.4			211.7			59.5		
Approach LOS	E			F			F			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	31.1	13.0	86.0	26.0	25.0	11.7	87.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.8	24.3	8.5	81.5	21.5	20.5	12.2	77.8				
Max Q Clear Time (g_c+T1), s	11.3	15.5	10.5	83.5	23.5	9.0	7.6	38.7				
Green Ext Time (p_c), s	0.1	0.5	0.0	0.0	0.0	0.6	0.0	12.4				
Intersection Summary												
HCM 6th Ctrl Delay	172.7											
HCM 6th LOS	F											

Intersection						
Int Delay, s/veh	372.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	501	501	783	596	98	1268
Future Vol, veh/h	501	501	783	596	98	1268
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	539	539	842	641	105	1363
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2736	1163	0	0	1483	0
Stage 1	1163	-	-	-	-	-
Stage 2	1573	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 22	~ 237	-	-	454	-
Stage 1	~ 297	-	-	-	-	-
Stage 2	~ 188	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 17	~ 237	-	-	454	-
Mov Cap-2 Maneuver	~ 96	-	-	-	-	-
Stage 1	~ 297	-	-	-	-	-
Stage 2	~ 145	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, \$	1390.7	0		1.1		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	96	237	454	-
HCM Lane V/C Ratio	-	-	5.612	2.273	0.232	-
HCM Control Delay (s)	-	\$	2162.4	\$	619	15.3
HCM Lane LOS	-	-	F	F	C	-
HCM 95th %tile Q(veh)	-	-	58.8	42.5	0.9	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection

Int Delay, s/veh 1140.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	323	293	476	563	254	248
Future Vol, veh/h	323	293	476	563	254	248
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	347	315	512	605	273	267

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1902	273	540
Stage 1	273	-	-
Stage 2	1629	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	~ 76	766	1028
Stage 1	773	-	-
Stage 2	~ 176	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	~ 38	766	1028
Mov Cap-2 Maneuver	~ 38	-	-
Stage 1	388	-	-
Stage 2	~ 176	-	-

Approach	EB	NB	SB
HCM Control Delay, s	3984.3	5.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1028	-	69	-	-
HCM Lane V/C Ratio	0.498	-	9.6	-	-
HCM Control Delay (s)	11.9	\$ 3984.3	-	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	2.8	-	77.4	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th Signalized Intersection Summary

Industrial Growth - 2040 PM

1: US 95 A/East St & Main St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	928	532	582	579	11	334	11	404	25	8	0
Future Volume (veh/h)	0	928	532	582	579	11	334	11	404	25	8	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1945	1870	1870	1945	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	977	560	613	609	12	352	12	425	26	8	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	3	614	352	120	1005	20	549	13	464	135	28	0
Arrive On Green	0.00	0.55	0.55	0.55	0.55	0.55	0.30	0.30	0.30	0.30	0.30	0.00
Sat Flow, veh/h	1853	1116	640	351	1828	36	1407	44	1548	96	94	0
Grp Volume(v), veh/h	0	0	1537	613	0	621	352	0	437	34	0	0
Grp Sat Flow(s),veh/h/ln	1853	0	1755	351	0	1864	1407	0	1592	190	0	0
Q Serve(g_s), s	0.0	0.0	33.0	0.0	0.0	13.5	0.0	0.0	15.9	0.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	33.0	33.0	0.0	13.5	13.7	0.0	15.9	16.7	0.0	0.0
Prop In Lane	1.00		0.36	1.00		0.02	1.00		0.97	0.76		0.00
Lane Grp Cap(c), veh/h	3	0	965	120	0	1025	549	0	478	163	0	0
V/C Ratio(X)	0.00	0.00	1.59	5.11	0.00	0.61	0.64	0.00	0.92	0.21	0.00	0.00
Avail Cap(c_a), veh/h	154	0	965	120	0	1025	549	0	478	163	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	13.5	30.0	0.0	9.1	19.5	0.0	20.3	19.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	271.4	1867.2	0.0	1.0	5.7	0.0	24.7	2.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	83.1	63.9	0.0	4.8	5.1	0.0	8.7	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	284.9	1897.2	0.0	10.1	25.1	0.0	45.0	22.2	0.0	0.0
LnGrp LOS	A	A	F	F	A	B	C	A	D	C	A	A
Approach Vol, veh/h	1537			1234			789			34		
Approach Delay, s/veh	284.9			947.6			36.1			22.2		
Approach LOS	F			F			D			C		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	22.5			37.5			22.5			0.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			33.0			18.0			5.0		
Max Q Clear Time (g_c+I1), s	17.9			35.0			18.7			0.0		
Green Ext Time (p_c), s	0.1			0.0			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	455.3											
HCM 6th LOS	F											

HCM 6th Signalized Intersection Summary

3: US 95 A & Chisolm Tr/Fremont St

Industrial Growth - 2040 PM



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	124	116	1039	571	58	207	646	2671	145	360	4546	178
Future Volume (veh/h)	124	116	1039	571	58	207	646	2671	145	360	4546	178
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1945	1945	1945	1796	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	128	120	910	589	60	182	666	2754	118	371	4687	153
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	48	366	191	117	355	232	1516	65	148	1370	44
Arrive On Green	0.08	0.26	0.26	0.10	0.28	0.28	0.13	0.44	0.44	0.08	0.39	0.39
Sat Flow, veh/h	1781	188	1426	1853	425	1288	1781	3473	148	1781	3513	114
Grp Volume(v), veh/h	128	0	1030	589	0	242	666	1399	1473	371	2358	2482
Grp Sat Flow(s),veh/h/ln	1781	0	1614	1853	0	1713	1781	1777	1844	1781	1777	1850
Q Serve(g_s), s	10.6	0.0	38.5	15.5	0.0	17.9	19.5	65.5	65.5	12.5	58.5	58.5
Cycle Q Clear(g_c), s	10.6	0.0	38.5	15.5	0.0	17.9	19.5	65.5	65.5	12.5	58.5	58.5
Prop In Lane	1.00		0.88	1.00		0.75	1.00		0.08	1.00		0.06
Lane Grp Cap(c), veh/h	151	0	414	191	0	472	232	776	805	148	693	721
V/C Ratio(X)	0.85	0.00	2.49	3.08	0.00	0.51	2.88	1.80	1.83	2.50	3.40	3.44
Avail Cap(c_a), veh/h	222	0	414	191	0	472	232	776	805	148	693	721
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.7	0.0	55.8	67.3	0.0	45.9	65.3	42.3	42.3	68.8	45.8	45.8
Incr Delay (d2), s/veh	17.7	0.0	676.2	948.3	0.0	4.0	856.0	366.6	378.1	694.3	1084.9	1101.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	93.6	57.8	0.0	8.3	63.9	107.1	113.6	34.3	234.2	247.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.4	0.0	732.0	1015.6	0.0	49.8	921.2	408.9	420.3	763.1	1130.6	1147.5
LnGrp LOS	F	A	F	F	A	D	F	F	F	F	F	F
Approach Vol, veh/h	1158				831		3538				5211	
Approach Delay, s/veh	660.5				734.3		510.1				1112.5	
Approach LOS	F				F		F				F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.2	45.8	17.0	70.0	20.0	43.0	24.0	63.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.3	35.3	12.5	65.5	15.5	38.5	19.5	58.5				
Max Q Clear Time (g_c+1/2C), s	112.6	19.9	14.5	67.5	17.5	40.5	21.5	60.5				
Green Ext Time (p_c), s	0.1	1.3	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 836.0

HCM 6th LOS F

Notes

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

HCM 6th Signalized Intersection Summary

4: Newlands Rd & US 95 A

Industrial Growth - 2040 PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	228	116	207	2099	460	426	236	1607	1168	542	2712	219
Future Volume (veh/h)	228	116	207	2099	460	426	236	1607	1168	542	2712	219
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	240	122	218	2209	484	448	248	1692	1229	571	2855	231
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	241	219	195	979	507	430	137	1386	618	288	1410	629
Arrive On Green	0.14	0.12	0.12	0.28	0.27	0.27	0.08	0.39	0.39	0.08	0.40	0.40
Sat Flow, veh/h	1781	1777	1585	3456	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	240	122	218	2209	484	448	248	1692	1229	571	2855	231
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	20.2	9.7	18.5	42.5	38.2	40.7	11.5	58.5	58.5	12.5	59.5	15.4
Cycle Q Clear(g_c), s	20.2	9.7	18.5	42.5	38.2	40.7	11.5	58.5	58.5	12.5	59.5	15.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	241	219	195	979	507	430	137	1386	618	288	1410	629
V/C Ratio(X)	1.00	0.56	1.12	2.26	0.95	1.04	1.82	1.22	1.99	1.98	2.03	0.37
Avail Cap(c_a), veh/h	241	219	195	979	507	430	137	1386	618	288	1410	629
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.8	61.9	65.8	53.8	53.7	54.6	69.2	45.8	45.8	68.8	45.2	32.0
Incr Delay (d2), s/veh	56.6	9.8	98.7	568.5	30.0	54.7	394.5	106.1	450.4	454.5	463.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	5.0	12.9	95.6	22.0	22.6	20.2	45.8	99.9	23.7	116.6	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	121.5	71.7	164.4	622.3	83.7	109.3	463.7	151.9	496.2	523.3	509.2	32.3
LnGrp LOS	F	E	F	F	F	F	F	F	F	F	F	C
Approach Vol, veh/h	580			3141			3169			3657		
Approach Delay, s/veh	127.1			466.1			309.8			481.3		
Approach LOS	F			F			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.8	45.2	17.0	63.0	47.0	23.0	16.0	64.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	20.3	40.7	12.5	58.5	42.5	18.5	11.5	59.5				
Max Q Clear Time (g_c+Q), s	22.2	42.7	14.5	60.5	44.5	20.5	13.5	61.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	405.8											
HCM 6th LOS	F											

Intersection						
Int Delay, s/veh	2488					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	345	201	535	579	504	805
Future Vol, veh/h	345	201	535	579	504	805
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	371	216	575	623	542	866
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	2837	887	0	0	1198	0
Stage 1	887	-	-	-	-	-
Stage 2	1950	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 19	343	-	-	583	-
Stage 1	402	-	-	-	-	-
Stage 2	~ 122	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	~ 1	343	-	-	583	-
Mov Cap-2 Maneuver	~ 8	-	-	-	-	-
Stage 1	402	-	-	-	-	-
Stage 2	~ 9	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	3484.3	0	18.7			
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	8	343	583	-
HCM Lane V/C Ratio	-	-	46.371	0.63	0.93	-
HCM Control Delay (s)	-	-	21321.9	31.8	48.6	-
HCM Lane LOS	-	-	F	D	E	-
HCM 95th %tile Q(veh)	-	-	48.3	4.1	11.9	-
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Intersection						
Int Delay, s/veh	2309.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	384	449	279	499	905	287
Future Vol, veh/h	384	449	279	499	905	287
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	413	483	300	537	973	309
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2110	973	1282	0	-	0
Stage 1	973	-	-	-	-	-
Stage 2	1137	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 56	~ 306	541	-	-	-
Stage 1	~ 366	-	-	-	-	-
Stage 2	~ 306	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 25	~ 306	541	-	-	-
Mov Cap-2 Maneuver	~ 25	-	-	-	-	-
Stage 1	~ 163	-	-	-	-	-
Stage 2	~ 306	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, \$	7763.8	7		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	541	-	50	-	-	
HCM Lane V/C Ratio	0.555	-	17.914	-	-	
HCM Control Delay (s)	19.6	-	7763.8	-	-	
HCM Lane LOS	C	-	F	-	-	
HCM 95th %tile Q(veh)	3.4	-	108.8	-	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

APPENDIX M

FUNDING STRATEGIES AND OPTIONS



Funding Strategies and Options

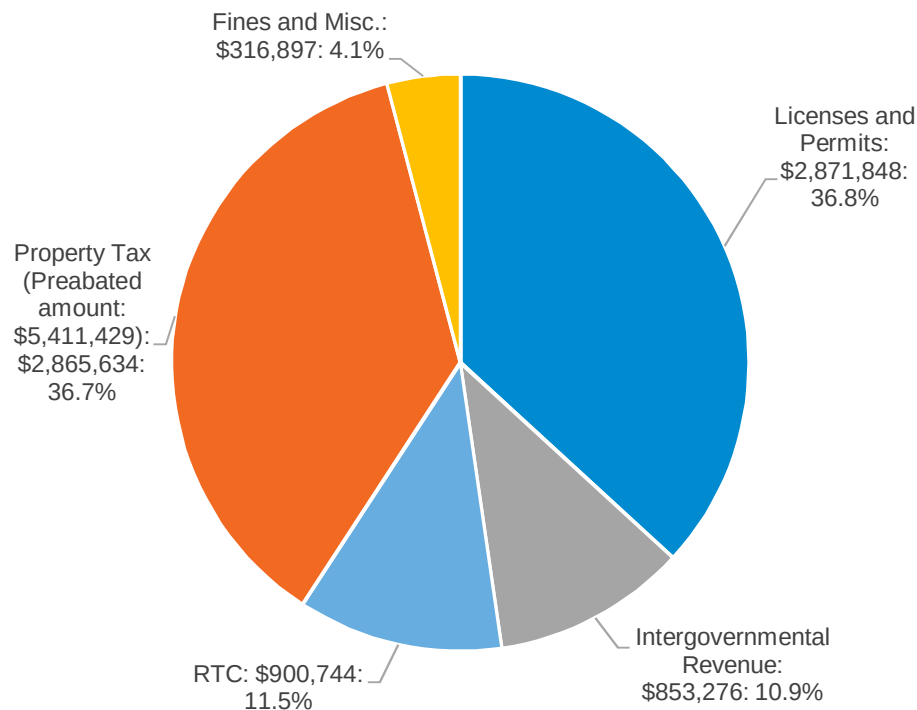
The implementation of the projects recommended in the Transportation Master Plan is contingent on the availability of funding for design and construction of the transportation improvement projects. This section summarizes current and potential future funding sources for transportation improvements and maintenance projects. The references used for this chapter are provided in **Appendix P**.

Existing Funding Sources

A review of the City of Fernley FY 2019 – 2020 Budget indicates that revenue sources for transportation projects include city general funds, city capital funds, and other funding, which are discussed as follows.

City General Fund

The City General Fund is comprised of many revenue streams as shown in the following figure.



Source: City of Fernley 2019-2020 Budget

Fernley General Fund Revenue Sources

Sources directly related to transportation are:

- *Lyon County Regional Transportation Commission (RTC Lyon) shared revenue* - The Lyon County RTC oversees the spending of a nine-cent fuel tax, which is allocated to each city within the county and to Lyon County based on assessed valuation. RTC Lyon also oversees road construction taxes collected in and spent in each city.
- *Motor Vehicle Fuel Tax (part of intergovernmental revenues shown in previous figure)* - the City of Fernley receives an allocation of certain taxes levied on sales of motor fuel. These funds are restricted for use in maintenance or capital projects relating to city streets.

- *Diesel Fuel Tax* – In April 2020, Lyon County implemented a five-cent tax on diesel fuel sold within the county to help generate revenue for road repairs. It is anticipated that these funds will be administered through Lyon County, but haven't been collected in the past and were not included in the 2019-2020 budget.
- *Road Ad Valorem (property) Tax (part of intergovernmental revenues shown in previous figure)* – Pursuant to Nevada Revised Statutes (NRS) 403 and NRS 266, the City of Fernley is entitled to a portion of the ad valorem tax collected in the Lyon County Road Fund based on relative assessed value.

City Capital Fund

The City Capital Fund is used for capital projects and major equipment purchases. Money from the City Capital Fund was used, in part to fund the Hardie Lane Construction Project and is currently allocated to pay for a portion of the Farm District Multiuse Path Project. According to the City Budget, funds have not been transferred into this Fund since 2007, therefore funding for future projects from this source may be limited.

Other Funding

Safe Routes to School (SRTS) funding was awarded by the FHWA and administered through the Nevada Department of Transportation (NDOT) to partially fund the Hardie Lane Roadway Reconstruction project. When originally started, the City was awarded and successfully utilized Community Development Block Grant (CDBG) funding as well.

Nevada Funding Options

This subsection discusses financing options authorized by Nevada statutes to fund transportation improvements and road maintenance in local jurisdictions.

Special Assessment District

A Special Assessment District (SAD) is a process that local governments can use to fund a variety of infrastructure and improvement projects. The authority to form a SAD is found in the NRS Chapter 271 - Local Improvements. The jurisdiction may use future ad valorem (property tax) revenues, assessed at a rate that is above the state constitutionally set cap of \$3.64 per \$100.00 of assessed value, either through annual collections or through the issuance of ad valorem backed bonds or other securities, to finance different infrastructure and improvement projects that the governing body has determined necessary to support the development of the SAD and provide necessary services to property owners and businesses located in the SAD.

The process of creation for a SAD is outlined in NRS Chapter 271 Section 275. A SAD can be created by either: (1) a provisional order of the local government authority, or (2) by petition of property owners or business owners located in the proposed SAD.

NRS Chapter 271 Section 265 outlines the broad powers and authorities of a SAD, which may acquire, improve, equip, operate and maintain a variety of projects (or combination of projects) in the areas of:

- transportation
- streets
- curb and gutter
- off-street parking
- overpass or underpass
- sidewalks

- street-beautification
- park
- commercial area vitalization
- energy-efficiency
- drainage improvement
- public safety
- renewable energy
- sanitary sewer
- security wall
- storm sewer
- water

The City of Reno has SADs created for the City's Neighborhood Street Rehabilitation program as well as the RTC Washoe's arterial and collector street rehabilitation projects. More information and Frequently asked questions on Reno's SAD program are provided at on their capital projects website.⁷

The University of Reno, University Center for Economic Development (UCED) analyzed SADs in Nevada (Technical Report UCED 2017/18-18 entitled "An Analysis of Special Assessment Districts in Nevada"). The study found that of 88 SADs in FY 2016-2017, seven were used to fund a variety of public services to properties located in the in SADs. Examples of these public services included maintaining street beautification projects, funding construction and maintenance of infrastructure and public improvements in a downtown area and providing additional police protection in a downtown core area.

Other SADs were used to finance projects including street construction, paving, installing curb and gutter, streetlighting, sidewalks, drainage improvements, storm sewer, sanitary sewer projects, streetscape/ beautification, and undergrounding powerlines.

The University of Nevada, Reno (UNR) study determined that four cities were using SADs in FY 2016- 2017: Henderson, Las Vegas, Reno, and Sparks.

Benefits: Can be used to fund a variety of projects. Dedicated source of funding which can include maintenance. There is flexibility to combine projects.

Challenges: Need clearly defined improvement district, projects, and justification. Procedures per NRS Chapter 271 must be followed. There is a public process the SAD has to go through prior to its being adopted. State law requires participants in a proposed SAD be given the opportunity to protest the formation of the SAD and/or their particular proposed assessment at a public hearing prior to the SAD being created. There are also administrative requirements and estimates of expenditures required annually.

For more information: See Nevada Revised Statutes, Title 22, Chapter 271 – Local Improvements⁸, Nevada Planning Guide⁹, and Steinmann, Frederick, University of Nevada

⁷ City of Reno, Special Assessment Districts Frequently Asked Questions, <https://www.reno.gov/government/departments/public-works/capital-projects/faqs>, (accessed May 15, 2020).

⁸ Nevada Legislature, Nevada Revised Statutes Title 22, Chapter 271 – Local Improvements, <https://www.leg.state.nv.us/NRS/NRS-271.html>, (accessed 5/15,2020).

⁹ Nevada State Lands, NV APA Nevada Planning Guide, February 2017, http://lands.nv.gov/uploads/documents/Docs_and_Pubs_E2017-146.pdf, (accessed May 15, 2020).

Cooperative Extension, Fact Sheet 13-33, Funding Economic Development in Nevada: Special Assessment Districts¹⁰

Impact Fees

Impact fee programs are defined in the NRS, Chapter 278B – *Impact Fees for New Development*. An impact fee is a charge imposed by a local government on new development to finance the costs of a capital improvement or facility expansion necessitated by and attributable to the new development. This can help pay for the traffic impacts attributable to a new development.

According to NRS Chapter 278B, a local government may charge an impact fee to cover the costs associated with the provision of capital improvement needs, including a street project. A street project is defined as an arterial or collector street or road as designated in the master plan adopted by the local government. The statute describes the capital improvement needs that may be financed by charging an impact fee and the process by which a local government may levy these fees. Before the local government determines and imposes an impact fee, a Capital Improvements Advisory Committee must be established which is responsible for reviewing land use assumptions related to the new development, determining if they are in conformance with the master plan of the local government, reviewing the established capital improvements plan of the local government and filing written comments and findings to the local governing board, and other reporting requirements.

NRS Chapter 278B Section 170 outlines the various requirements of a capital improvements plan that must be in place and adopted by the local governing board prior to the imposition and collection of an impact fee or fees. The capital improvement plan must include the following:

- A description of the existing capital improvements and the costs to upgrade, improve, expand or replace those improvements to meet existing needs or more stringent safety, environmental or regulatory standards.
- An analysis of the total capacity, level of current usage and commitments for usage of capacity of the existing capital improvements.
- A description of any part of the capital improvements or facility expansions and the costs necessitated by and attributable to the new development in the service area based on the approved land use assumptions.
- A table which establishes the specific level or quantity of use, consumption, generation or discharge of a service unit for each category of capital improvements or facility expansions.
- An equivalency or conversion table which establishes the ratio of a service unit to each type of land use, including but not limited to, residential, commercial and industrial uses.
- The number of projected service units which are required by the new development within the service area based on the approved land use assumptions.
- The projected demand for capital improvements or facility expansions required by new service units projected over a period not to exceed 10 years.

Depending on the type of project requiring the use of an impact fee or fees to fund (drainage, fire station, park, police station, sanitary sewer, storm sewer, street, or water project), the local

¹⁰ Steinmann, Frederick, University of Nevada Cooperative Extension, Fact Sheet 13-33, Funding Economic Development in Nevada: Special Assessment Districts, <http://www.nvnaco.org/wp-content/uploads/Funding-Econ-Dev-in-NV-Special-Assessment-Districts.pdf>, accessed May 15, 2020.

government, the amount and way in which the impact fee or fees are assessed and imposed may vary. The statute outlines the various conditions a local government must follow when assessing and imposing an impact fee or fees based upon the type of project the impact fee or fees are designed to fund. For street projects, jurisdictions can increase impact fees to adjust for inflation automatically, per NRS Chapter 278B, Section 225.

The RTC of Washoe County has a Regional Road Impact Fee, which are imposed on all new development within designated service areas. In general, impact fees are assessed in accordance with the land use type. More information is provided in a Regional Road Impact Fee System General Administrative Manual, 5th Edition.¹¹

An example of a jurisdiction using an impact fee is the City of Sparks, Nevada. They have developed 2019 Fiscal Impact Analysis Guidelines¹², <https://cityofsparks.us/wp-content/uploads/2019/11/FIA-Submittal-Guidelines-Adopted-11-12-19.pdf> which include, among other analyses, estimates for their Road Fund based on current average expenditure per square foot of pavement maintained by the city in defined sections of the city.

Benefits: Method to recoup transportation costs associated with new development and can include maintenance costs.

Challenges: Potential for discouraging development if too restrictive. Before imposing an impact fee there are statutory requirements, such as establishing a Capital Improvements Committee and a Capital Improvements Plan. There would be additional resources required by the City in terms of staff time and funding.

For more information: See NRS 278B, Impact Fees for New Development.¹³

Federal Funding Programs for Transportation Improvements

Federal funds for transportation are collected nationally and allocated back to the states through a series of formulas and grants under the existing transportation legislation. Generally, federal funding programs require a state or local match of funds toward the cost of a project. The typical match for street and highway programs is five percent and for transit programs it is 20 percent.

Highway Safety Improvement Program

The Highway Safety Improvement Program (HSIP) is administered by NDOT's Traffic Engineering Safety Section to fund projects that advance highway safety goals in Nevada.

HSIP is a federal-aid program that aims to achieve a significant reduction in traffic fatalities and serious injuries on all public roads (including non-State-owned public roads and roads on tribal

11 Regional Transportation Commission of Washoe County, *Regional Road Impact Fee System General Administrative Manual, 5th Edition*, Indexed year 3- 7/1/2018, <http://www.rtcwashoe.com/wp-content/uploads/2018/05/5th-RRIF-GAM-7-1-2018-Indexing-Yr-3.pdf>, accessed May 15, 2020.

12 City of Sparks Nevada, 2019 Fiscal Impact Analysis Guidelines, <https://cityofsparks.us/wp-content/uploads/2019/11/FIA-Submittal-Guidelines-Adopted-11-12-19.pdf>, accessed May 15, 2020.

13 Nevada Revised Statutes, Title 22, Chapter 278B – Impact Fees for New Development, <https://www.leg.state.nv.us/NRS/NRS-278B.html>, accessed May 15, 2020.

land). The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads while placing an emphasis on performance.

The *Nevada Highway Safety Assessment 2018 Annual Report* describes examples of how local roads are addressed in the HSIP Program:¹⁴

- NDOT Traffic Safety Engineering evaluates local roads for safety improvements such as slope flattening/shoulder widening, flashing yellow arrows, rumble strips, and turn pockets with acceleration/deceleration lanes on rural highways.
- NDOT uses recommendations made during Road Safety Assessments (RSA) completed on local and tribal roads to develop projects. While evaluating rural intersections NDOT identifies those locations where fatalities and serious injuries can be reduced by converting to a roundabout.

Safety improvements are typically identified through the performance of an engineering study, RSA, crash data analysis, local road safety plan, or other data driven safety analysis tools.

The Nevada Highway Safety Assessment 2018 Annual Report listed local or tribal HSIP projects in Carson City, and the Washoe Tribe.

Benefits: Federally funded program to address demonstrated transportation safety needs.

Challenges: These funds are distributed competitively, and needs must be demonstrated through a data-driven approach.

For more information: See the NDOT HSIP website.¹⁵

Transportation Alternatives Program

The NDOT Transportation Alternatives Program (TAP) provides federal funds for community-based smaller scale transportation projects. Examples of these projects include:

- On-road and off-road pedestrian and bicycle facilities
- Infrastructure projects for improving non-driver access to public transportation and enhanced mobility
- Community improvement activities
- Environmental mitigation
- Safe Routes to School projects
- Streetscape improvements
- Refurbishment of historic transportation facilities

The NDOT administers this program and projects are selected through a competitive process utilizing a selection committee. TAP funds are made available to the State through the FHWA and administered by NDOT. This program provides up to 95 percent of project-related cost, with the

¹⁴ Nevada Highway Safety Improvement Program, 2018 Annual Report, pp. 5,6
<https://safety.fhwa.dot.gov/hsip/reports/pdf/2018/nv.pdf>, accessed 1/9/2020

¹⁵ Nevada Department of Transportation, *Highway Safety Improvement Program*,
<https://www.nevadadot.com/safety/highways-safety-improvement-program-hsip>, accessed May 15, 2020.

remaining five percent (5%) provided by project sponsors. Information about the program is provided through the NDOT's TAP website.¹⁶

Scoring criteria includes:

- Project preparedness
- Benefits to transportation safety
- Benefits to non-motorized mobility and travel choices
- Consistency with federal transportation alternatives program goals
- Consistency with NDOT transportation alternatives program guidance and consistency with local planning and community goals

Examples of projects that have been awarded funding in previous years (Federal Fiscal Years 2016 – 2018) include:

- Lyon County - Preservation and rehabilitation of Carson and Colorado Railroad Depot and provide ADA access.
- Carson City - Construct buffered bike lanes, raised intersections and crossings, narrow traffic lanes, median refuges, lighting, sidewalks, curb improvements and pavement markings extending the complete streets project from Fairview Drive to Appion Way.
- City of Henderson - Construct 0.6 miles of trail connecting various local school access.

A subsection under the NDOT Transportation Alternatives website is a Planning and Needs Assessment (PLANA) online project initiation application that provides a platform for jurisdictions and organizations to initiate projects.¹⁷ The PLANA is meant to inform the NDOT planning division of a need for a project. The creation of a PLANA does not guarantee the completion or funding of a project or need, it will however help the NDOT Planning Division prioritize and identify needs.

Benefits: Typically used for community-based smaller scale projects.

Challenges: Funding is awarded competitively. A challenge for all grants/federal funds that are distributed on a reimbursement basis is that the local public agency must have appropriate funds to pay for engineering services and improvements upfront. Additional resources are required to provide adequate staff to administer grant funded, FHWA, or Federal Transit Administration (FTA) projects.

For more information: See the NDOT TAP website.¹⁸

Federal Lands Access Program

The Federal Lands Access Program (FLAP) provides funds for transportation projects located on or adjacent to, or that provide access to federal lands. Funds are distributed by formula among

¹⁶ Nevada Department of Transportation, *Transportation Alternatives Program*, <https://www.nevadadot.com/projects-programs/transportation-alternatives-program>, referenced May 15, 2020.

¹⁷ Nevada Department of Transportation, *Planning and Needs Assessment (PLANA)*, <https://www.nevadadot.com/projects-programs/transportation-alternatives-program/plana>, accessed May 15, 2020.

¹⁸ Nevada Department of Transportation, *Transportation Alternatives Program*, <https://www.nevadadot.com/projects-programs/transportation-alternatives-program>, accessed May 15, 2020.

States that have Federal lands managed by the National Park Service, the U.S. Forest Service, the U.S. Fish and Wildlife Service, the Bureau of Land Management, and the U.S. Army Corps of Engineers. FLAP presents an opportunity for state, county, tribal, and local entities to get projects placed into this program for a variety of transportation projects accessing Federal Lands in the state of Nevada. Currently this program is accepting applications for program funding through March 12, 2020. Preference for funding for design, construction, or reconstruction. Preference is not given to fund maintenance projects (e.g., crack sealing, chip seal, potholes, or drainage repair).

The selection criteria include:

- Federal lands access proximity and significance
- Access to federal high-use recreation site and/or federal economic generator
- Improves public access
- Safety improvement
- Preservation
- Natural resource protection
- Project cost and scope risk
- Overmatch/leveraging of funds
- Consistent with Nevada Programming Decisions Committee program vision

Applicants are responsible to provide non-federal matching funds for a minimum of amount of five percent of project eligible costs.

Benefits: Funding source for design, construction, and reconstruction of roads serving or on public lands.

Challenges: This is a competitive project selection, limited to roads serving or on federal lands. A key challenge is that Fernley is not adjacent to major high-use recreation areas, or federal economic generators, such as a national park, national forest, or wildlife refuge area.

For more information: See the Nevada FLAP website.¹⁹

Surface Transportation Block Grant Program

The Surface Transportation Block Grant (STBG) Program is one of the primary federal funding programs to implement transportation projects. It provides flexible funding for projects to preserve or improve conditions and performance on any Federal-aid highway, bridge projects (on any public road), facilities for nonmotorized transportation, transit capital projects, and public bus terminals and facilities (transit funding options are discussed in Section 3.5). In general, STBG projects may not be on local roads or rural minor collectors, however there are a number of exceptions to this requirement, most notably:

- The ability to use up to 15% of a State's rural suballocation on minor collectors;
- Bridge and tunnel projects, and inspections
- Safety projects (see Section 5.3.1, HSIP)

¹⁹ Federal Highway Administration, *Nevada Federal Lands Access Program*, <https://flh.fhwa.dot.gov/programs/flap/nv/>, accessed May 15, 2020.

- Fringe and corridor parking facilities/programs
- Transportation Alternatives projects (see Section 5.3.2, TAP)

FHWA apportions funding to states, which then are responsible for distributing an amount to areas in proportion to its urban population. According to FHWA, for areas with a population less than 50,000, projects are selected from the approved Statewide Transportation Improvement Program (STIP) by the State in cooperation with the affected nonmetropolitan local officials with responsibility for transportation or, if applicable, through regional transportation planning organizations, except that projects on the National Highway System (NHS) or funded with any remaining funds from the Highway Bridge or Interstate Maintenance programs are selected from the approved STIP by the State in consultation with the affected nonmetropolitan local officials with responsibility for transportation. It should be noted that I-80 is an NHS route. The non-federal local match requirement for projects is five percent.

Projects on the NHS or funded with any remaining funds from the Highway Bridge or Interstate Maintenance programs are selected from the approved STIP by the State in consultation with the affected nonmetropolitan local officials with responsibility for transportation.

For Metropolitan Planning Organizations (MPO) there is typically a project evaluation process that occurs to allocate funding to projects.

Benefits: A key benefit of the STBG Program is flexible funding.

Challenges: Most arterial or major collector roads in Fernley are state routes. There is limited and competitive funding on rural minor collector roads. Projects in smaller cities and rural areas appear to be funded mainly through the HSIP and the TAP.

For more information: See the FHWA Fact Sheet on STBG Program²⁰, FHWA Suballocation of Apportioned Funds Questions and Answers²¹, and the NDOT Transportation Planning website²²

USDOT BUILD Grant Program

The Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grant program competitively awards grant funding for planning and capital investments for projects that will have a significant local or regional impact. BUILD funding can support roads, bridges, transit, rail, ports or intermodal transportation.

The USDOT intends to award 50% of fiscal year 2020 BUILD Transportation grant funding to projects located in rural areas, consistent with DOT's Rural Opportunities to Use Transportation for Economic Success (ROUTES) initiative which addresses disparities in rural transportation infrastructure. This program encourages rural projects that address deteriorating conditions and disproportionately high fatality rates on rural transportation infrastructure. BUILD can provide capital funding directly to any public entity, including municipalities, counties, MPOs, or others in

²⁰ Federal Highway Administration, *Surface Transportation Block Grant Program*, <https://www.fhwa.dot.gov/fastact/factsheets/stbgfs.cfm>, accessed May 15, 2020.

²¹ Federal Highway Administration, *Suballocation of Apportioned Funds Questions and Answers*, https://www.fhwa.dot.gov/cfo/suballocation_qa.cfm, accessed May 15, 2020.

²² Nevada Department of Transportation, *Transportation Planning*, <https://www.nevadadot.com/doing-business/public-involvement-information/transportation-planning>, accessed May 15, 2020.

contrast to traditional Federal programs which provide funding to very specific groups of applicants (mostly State DOTs and transit agencies).

Projects for BUILD will be evaluated based on merit criteria that include safety, economic competitiveness, quality of life, environmental sustainability, state of good repair, innovation, and partnership.

The Federal share of project costs under this program, which is typically 80 percent (in an urban area), may increase above 80 percent for a project located in a rural area.

Benefits: the FY 2020 BUILD program gives special consideration to projects which emphasize improved access to transportation for communities in rural areas. The local share is lower than typical federal grant programs.

Challenges: Funds are awarded through a competitively funded award process.

For more information: See the U.S. Department of Transportation, About BUILD Grants,²³ and information about the grant application process at BUILD Grants Notice of Funding Opportunity.²⁴

MPO's and other Partnerships

Existing MPOs

An MPO is required to represent localities in all urbanized areas with population over 50,000 as determined by the U.S. Census. An MPO is the policy board of an organization created and designated to carry out the metropolitan transportation planning process. MPOs are designated by agreement between the governor and local governments that together represent at least 75 percent of the affected population or in accordance with procedures established by applicable state or local law.

Some advantages of being a part of an MPO include:

- Consideration for project funding – MPO representatives from these entities review regional project requests and collectively decide on the priorities and where funding will be spent.
- Transportation technical assistance – this can vary depending on the MPO, but normally they can provide traffic counts and accident information, planning studies, and some assistance in preparing applications.
- A voice in regional planning – whether a voting or non-voting member, participation in a COG or MPO will provide more opportunities to communicate transportation-related priorities.
- Participation in regional planning initiatives, which can include safety, alternate modes, and other types of regional studies. MPO staff works with local governments to address similar issues faced by the communities within their regions.

²³ U.S. Department of Transportation, *About BUILD Grants*, <https://www.transportation.gov/BUILDgrants/about>, accessed May 6, 2020.

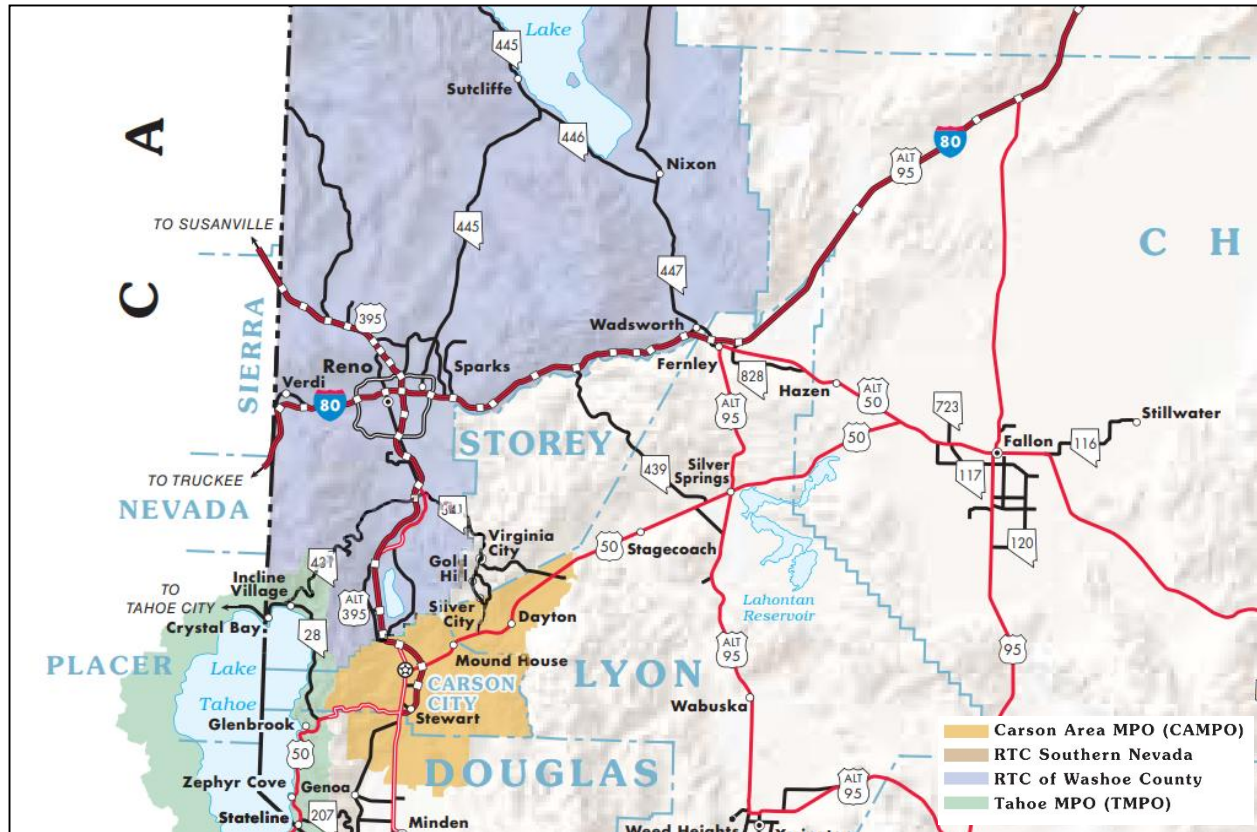
²⁴ U.S. Department of Transportation, *BUILD Grants Notice of Funding Opportunity*, <https://www.transportation.gov/buildgrants/build-nofo>, accessed May 6, 2020.

Nevada has four MPOs in the state:

- Regional Transportation Commission of Southern Nevada (RTCSNV): administers MPO/TMA activities throughout Clark County
- Regional Transportation Commission of Washoe County (RTC Washoe): administers MPO/TMA activities throughout Washoe County
- Lake Tahoe Metropolitan Planning Organization (TMPO): administers MPO/TMA activities throughout the Lake Tahoe Basin
- Carson Area Metropolitan Planning Organization (CAMPO): administers metropolitan planning activities in Carson City and portions of Douglas and Lyon Counties

The City of Fernley may want to consider petitioning to become part of an MPO. Fernley is the vicinity of two MPOs, the RTC Washoe, and the CAMPO, as shown in the following figure. Fernley is part of Lyon County. The CAMPO includes western portions of Lyon County, so it potentially could be petitioned to include the City of Fernley. However, geographically Fernley is relatively close to the boundary of the RTC Washoe, although it is not within Washoe County. This geographic nearness may provide a basis for petitioning to expand its boundaries to include Fernley.

According to the Code of Federal Regulations (CFR) 450.312, Metropolitan Planning Area (MPA) Boundaries, an MPO (in cooperation with the State and public transportation operator(s)) shall review the MPA boundaries after each Census to determine if existing MPA boundaries meet the minimum statutory requirements for new and updated urbanized area(s) and shall adjust them as necessary. As appropriate, additional adjustments should be made to reflect the most comprehensive boundary to foster an effective planning process that ensures connectivity between modes, improves access to modal systems, and promotes efficient overall transportation investment strategies. Therefore, should the City of Fernley desire to discuss becoming a member of an MPO, it may be advisable to discuss this when the results of the 2020 U.S. Census become available.



Source: 2018 Nevada DOT Statewide Transportation Improvement Program

MPO Boundaries in the Vicinity of Fernley

Creating a New MPO

According to CFR 450.310 - MPO Designation and Redesignation, an MPO shall be designated for each urbanized area with a population of more than 50,000 individuals (as determined by the Bureau of the Census).

MPO designation are made by agreement between the Governor and units of local government that together represent at least 75 percent of the affected population (including the largest incorporated city, based on population, as named by the Bureau of the Census) or in accordance with procedures established by applicable State or local law.

Currently, it does not appear to be feasible to establish an MPO because the City of Fernley is less than 50,000 population and nearby communities are relatively small. Population and status of nearby communities that are not currently a part of an MPO are summarized in the following table.

As Fernley continues to grow, it may be advisable to look at the population of Fernley and nearby areas to see if there is a possibility to designate an MPO, after the 2020 U.S. Census data is available.

Population, Status, Census Designation, and County of Potential MPO Partners

Location	Population	Status, Census Designation	County
Fernley	19,185 (2015)	City	Lyon
Silver Springs	5,296 (2010)	Census designated place	Lyon
Stagecoach	1,874 (2010)	Unincorporated community, Census designated place	Lyon
Virginia City	855 (2010)	Town	Storey
Hazen	N/A	Unincorporated community	Churchill
Fallon	8,606 (2010)	City	Churchill

Transit Funding and Implementation

This section discusses federal transit funding and implementation programs, should the City of Fernley decide to implement a public transit system.

Transit Funding

Rural and small urbanized areas with populations less than 50,000, such as the City of Fernley, work with the NDOT, which receives FTA grant funding and administers it to qualified grant subrecipients.

The NDOT Multimodal Planning Division Transit Office (referred here as the NDOT Transit Office) administers the following FTA programs:

- Section 5310 – Enhanced Mobility of Seniors and Individuals with Disabilities Program
- Section 5311 – Rural Area Program
- Section 5339 – Bus and Bus Facility Program

The following subsections provide an overview of the Sections 5311, 5310 and 5339 federal transit funding programs.

Section 5310 Enhanced Mobility of Seniors and Individuals with Disabilities

Section 5310 (49 U.S.C. 5310), Enhanced Mobility for Seniors and Individuals with Disabilities, addresses mobility needs by providing FTA funds for programs in small urbanized and rural areas that serve the special needs of transit-dependent populations beyond traditional public transportation services and ADA complementary paratransit services.

Eligible subrecipients are private non-profit organizations, governmental authorities where no non-profit organizations are available to provide service, and governmental authorities approved to coordinate services.

NDOT uses its Section 5310 allocation primarily to purchase handicapped accessible paratransit vehicles, although program funds can potentially be used for operating funds, capital assistance, and related equipment. In addition, mobility management awards are available to assist agencies and communities with their coordination efforts. Capital assistance can include buses and vans, wheelchair lifts, ramps, transit-related information technology systems, including scheduling, routing and one-call systems. Also mentioned is funding for “non-traditional” projects such as

curb-cuts and sidewalks accessible pedestrian signals, improved signage or wayfinding technology, purchasing vehicles to support new accessible taxi or ridesharing or vanpooling programs.

The local share of eligible capital costs is typically 20 percent of the net cost of the activity and although the Section 5310 allocation in Nevada is typically for capital costs, the local share for eligible operating costs shall not be less than 50 percent of the net operating cost.

Benefits: Funding is for transit services to seniors and special needs populations.

Challenges: Funding applications are ranked, and applicants must demonstrate legal, financial, and technical capacity to carry out the program. A local match is required, and grantees must meet federal and state requirements and provisions listed in the *NDOT State Management Plan for Sections 5311, 5310 and 5339 Assistance to Small Urbanized and Rural Area Programs*.

For more information: See the NDOT Public Transit website²⁵ and *NDOT State Management Plan for Sections 5311, 5310 and 5339 Assistance to Small Urbanized and Rural Area Programs*.²⁶

Section 5311 Rural Public Transportation Program

Section 5311 (49 U.S.C. 5311), Non-Urbanized Area Formula Program, addresses the mobility needs of rural areas. NDOT's program goals are:

- Enhance the access of Nevada citizens located in non-urbanized areas to healthcare, shopping, education, employment, public services, and education;
- Assist in the maintenance, development, improvement and the use of public transportation systems in rural areas;
- Encourage and facilitate the most efficient use of all federal funds used to provide passenger transportation in nonurbanized areas through the coordination of programs and services;
- Assist the development and support of the intercity bus transportation;
- Encourage employment-related transportation alternatives; and
- Provide for the participation of private transportation providers in nonurbanized transportation to the extent possible.

Section 5311 provides federal funding assistance for program administration, capital expenses, and operating expenses to providers of public transportation services in small urban and rural areas. Eligible services include any transportation service provided by bus, shared-ride taxi, or any other publicly or privately-owned conveyance that serves the public.

Eligible subrecipients include local government authorities, public and private non-profit organizations, Native American Tribes, and private operators of public transportation services, including intercity bus operators.

²⁵ Nevada Department of Transportation, Public Transit, <https://www.nevadadot.com/mobility/transit>, accessed May 15, 2020.

²⁶ Nevada Department of Transportation, *NDOT State Management Plan for Sections 5311, 5310 and 5339 Assistance to Small Urbanized and Rural Area Programs*, <https://www.nevadadot.com/home/showdocument?id=17544>, accessed May 15, 2020.

A summary of the match requirements for the 5311 program is provided in the following table. Examples of non-federal local match sources include:

- State or local appropriations
- Dedicated tax revenues
- Private and non-profit donations
- Net income from advertising and concessions
- University/school contributions
- In-kind contributions (must be documented in the recipient's application and accounting system, approved by NDOT, and included in the NDOT agreement. Not allowable for most capital projects.)

Limitations on accepting donations must be in accordance with state and local guidelines, and statutes. Typically, the local match must be derived from sources other than federal funds, except where permitted by specific federal program language.

Section 5311 Match Requirements

Program Element	Examples	Maximum Federal Share	Local Share Requirement
Capital	Capital expenses include the acquisition and improvement of public transit equipment and facilities needed to operate an efficient public transit system	95%	5%
Operating	Driver and dispatcher salaries and fringe benefits, fuel, oil, licenses. Only net operating costs are eligible for assistance	59.38%	40.62%
Preventive Maintenance	Eligible costs may include oil, replacement parts, contracted maintenance, and cost of tires and tubes	95%	5%
Project Administration	General administrative expenses, marketing expenses, insurance premiums or payments to a self-insurance reserve, office supplies, facilities and equipment rental, standard overhead rates, and costs of administering drug and alcohol testing.	80%	20%
Intercity Operating	Administrative staff salaries, office supplies and office equipment used to administer the transit program	59.38%	40.62%
Mobility Management	Short-range planning, management activities, and projects for improving coordination and cooperation amongst human service agencies, advocacy groups, and public transportation providers. Typically, expenses include salary, fringe benefits, computer and software.	95%	5%

Source: Nevada Department of Transportation State Management Plan for Sections 5311, 5310 & 5339 Assistance to Small Urbanized & Rural Area Programs, 2020, Section F.2, pp. 10-16.

Benefits: Funding for a broad range of costs for rural transit services.

Challenges: Funding applications are ranked, and applicants must demonstrate legal, financial, and technical capacity to carry out the program. A local match is required, and grantees must meet all federal and state requirements listed in the *NDOT State Management Plan for Sections 5311, 5310 and 5339 Assistance to Small Urbanized and Rural Area Programs*.

For more information: See the NDOT Public Transit website²⁷ and *NDOT State Management Plan for Sections 5311, 5310 and 5339 Assistance to Small Urbanized and Rural Area Programs*²⁸

Section 5339 Bus and Bus Facility Program

Section 5339 (49 U.S.C. 5339), Bus and Bus Facilities Infrastructure Investment Program, makes federal resources available for agencies operating fixed-route services to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities. The NDOT Transit Office uses its annual FTA Section 5339 funding allocation for bus and facility projects. NDOT's goal for this program is to maximize available funding in a cost-effective manner to meet Section 5311 capital needs and maintain the statewide fleet in a state of good repair so that it can be used to provide efficient, reliable and safe service.

The federal share for eligible capital under the Section 5339 program is 80 percent. The remaining 20 percent local match can be provided from a variety of sources, including but not limited to funds from local communities or counties, the State of Nevada, or other eligible resources. The federal share may exceed 80 percent for certain projects related to ADA and Clean Air Act (CAA) compliance.

Local matching funds are primarily cash contributions from local or state sources. The local share may include state or local appropriations, dedicated tax revenues, private donations, or net income generated from advertising and concessions. Noncash shares such as donations, volunteered services, or in-kind contributions can be counted toward the local match only if the recipient formally documents the value of each noncash share and if this value represents a cost that would otherwise be eligible under the project.

Eligible subrecipients include public agencies or private nonprofit organizations engaged in fixed-route public transportation, including those providing services open to a segment of the general public, as defined by age, disability, or low income.

Benefits: Funding is to replace, rehabilitate, and purchase buses and related equipment and to construct bus-related facilities for agencies operating fixed route service.

Challenges: Funding applications are ranked, and applicants must demonstrate legal, financial, and technical capacity to carry out the program. A local match is required, and grantees must meet all federal and state requirements listed in the *NDOT State Management Plan for Sections 5311, 5310 and 5339 Assistance to Small Urbanized and Rural Area Programs*.

²⁷ Nevada Department of Transportation, *Public Transit*, <https://www.nevadadot.com/mobility/transit>, accessed May 15, 2020.

²⁸ Nevada Department of Transportation, *NDOT State Management Plan for Sections 5311, 5310 and 5339 Assistance to Small Urbanized and Rural Area Programs*, <https://www.nevadadot.com/home/showdocument?id=17544>, accessed May 15, 2020.

For more information: See the NDOT Public Transit website²⁹ and *NDOT State Management Plan for Sections 5311, 5310 and 5339 Assistance to Small Urbanized and Rural Area Programs*³⁰

NDOT Transit Office

The NDOT Transit Office developed the *NDOT State Management Plan for Sections 5311, 5310 and 5339 Assistance to Small Urbanized and Rural Area Programs*³¹, which outlines policies, procedures, and responsibilities of both the NDOT and FTA program participants.

The NDOT Transit Office uses the same project selection process for the above FTA grant programs. The applications are accepted mid-February (when annual FTA apportionments are announced) to mid-April each year. The applicant must demonstrate that it has the requisite legal, financial, and technical capacity to carry out the program and to implement and manage the project. The NDOT Transit Office reviews the applications for eligibility and completeness, with further evaluation resulting in a scoring and ranking of applications based on the following criteria:

- Project need
- Financial and technical capacity
- Coordination and cooperation
- Compliance risk
- Previous project performance
- Fiscal performance and budget

More information on these criteria can be found in Section H of the *NDOT State Management Plan for Sections 5311, 5310 and 5339 Assistance to Small Urbanized and Rural Area Programs*. NDOT's top priority is to fully fund all eligible application projects.

Transit System Implementation Overview

This section presents a brief, high-level overview of some considerations in developing a transit system for a small urban or rural area. Much of this information was adapted from *Primer on Design and Implementation of Transit Services in Smaller Communities* (2016)³² by the Transportation Association of Canada.

²⁹ Nevada Department of Transportation, *Public Transit*, <https://www.nevadadot.com/mobility/transit>, accessed May 15, 2020.

³⁰ Nevada Department of Transportation, *NDOT State Management Plan for Sections 5311, 5310 and 5339 Assistance to Small Urbanized and Rural Area Programs*, <https://www.nevadadot.com/home/showdocument?id=17544>, accessed May 15, 2020.

³¹ Nevada Department of Transportation, *NDOT State Management Plan for Sections 5311, 5310 and 5339 Assistance to Small Urbanized and Rural Area Programs*, <https://www.nevadadot.com/home/showdocument?id=17544>, accessed May 15, 2020.

³² Transportation Association of Canada, *Primer on Design and Implementation of Transit Services in Smaller Communities*, 2016, <https://tac-atc.ca/sites/tac-atc.ca/files/site/doc/resources/primer-january2016.pdf>, accessed May 15, 2020.

<https://tac-atc.ca/sites/tac-atc.ca/files/site/doc/resources/primer-january2016.pdf> *Market Research and Public Outreach*

Developing new transit services that meet community needs requires an understanding of the market you are trying to serve. There are three types of market characteristics that require study:

- **Demographics** – This involves identifying key groups who might use transit services. Examples are commuters, students, tourists, seniors, persons with disabilities.
- **Geography** – This involves highlighting where transit service should be provided, such as major land uses and areas where persons will be traveling to. Examples are major employment centers, schools, commercial and shopping areas.
- **Trip purposes** – This involves identifying what types of trips should be served, such as commuter school, medical, shopping, recreational.

Public outreach is very important throughout the planning and implementation process to identify the service needs are in the community, gain community support, and identify potential community partnerships. Public outreach techniques can include:

- **Surveys** – can be useful in determining community needs
- **Meetings** – general public and stakeholder group
- **News articles and press releases** – to make the public aware of what transit services are being considered

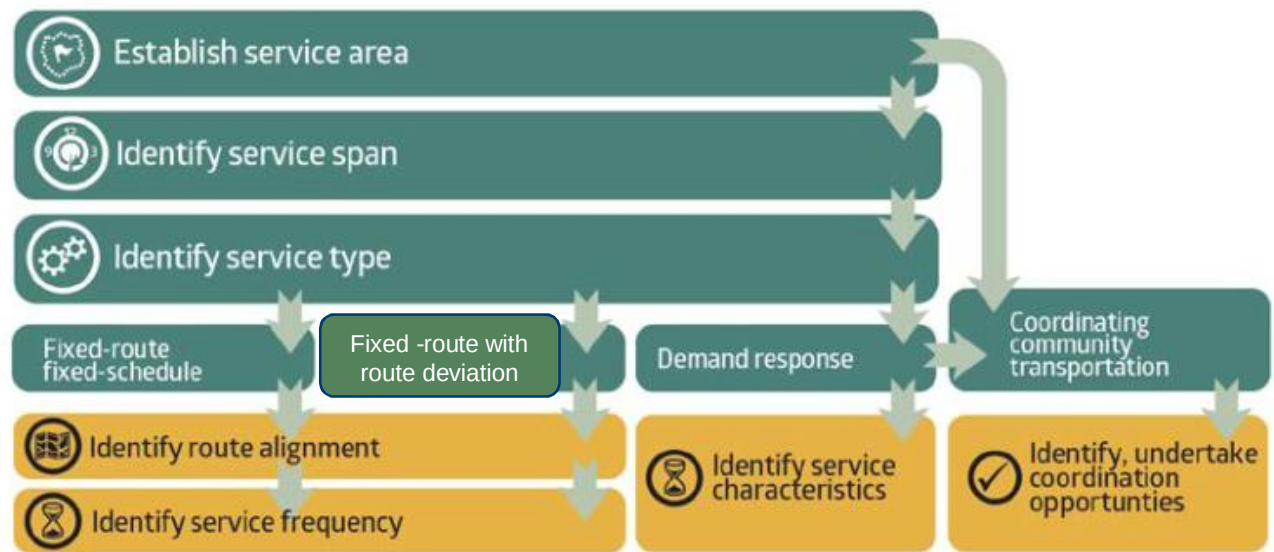
FTA Section 5311 program recipients are responsible for garnering support from a broad number of stakeholders to ensure the transit service responds to local needs, which may change over time.

Identifying Types and Costs of Service to Best Fit Needs

Design of a transit system involves the following processes to define the type of transit service and costs. Basic planning for a transit system design is shown graphically in the following figure. Transit service types can include:

- **Fixed route transit** – transit where a vehicle is operated along a prescribed route according to a fixed schedule.
- **Route deviation service** – transit operates along established routes with deviations for pick up. Riders are typically asked to request an off-route pickup.
- **Demand responsive** – transit where a rider must request service, examples are dial-a-ride service, taxi subsidy, vanpool, route deviation.

Developing details of the type of transit service will be used to develop cost and revenue estimates for the service, including revenues from federal grant sources, local revenue contributions, and farebox revenue. Cost estimates include capital costs, which include vehicles and their accessories, equipment, and facility costs, which can include design and construction of offices, bus storage and maintenance facilities, bus stop signs, and bus shelters, depending on the type of transit system. Equipment would include items such as computer equipment, software, maintenance shop tools and equipment and office furniture.



Source: *Primer on Design and Implementation of Transit Services: Guidelines for Smaller Communities*

Flowchart of Transit Service Design

Detailed implementation Plan

The next figure illustrates common implementation activities prior to starting a transit system. Some of the activities depend on the type of transit service provided.



Source: *Primer on Design and Implementation of Transit Services: Guidelines for Smaller Communities*

Transit Implementation Activities

Policies for Compliance, Training, and Reporting Requirements

In the Section 5311 program, subrecipients are responsible for ensuring that transit service meets local needs, operates safely, effectively and efficiently, meets performance standards, is coordinated with other agencies, and is marketed to the public and human service agencies. In addition, all services must be operated in compliance with federal and state regulations. The *NDOT State Management Plan for Sections 5311, 5310 and 5339 Assistance to Small Urbanized and Rural Area Programs* provides an overview of federal and state requirements for FTA funded transit systems.

Jump Around Carson (JAC) Transit System

This section provides a history on the establishment and operations of the JAC (Jump Around Carson), as a local case study that exemplifies the creation and implementation of a relatively new transit system. The JAC is Carson City, Nevada's public transit system which began

operating in October 2005. It is governed by the Carson City Regional Transportation Commission (RTC).

The JAC transit program was initiated in response to the 2005 CAMPO Short Range Transit Plan. The JAC system includes the JAC fixed route system as well as JAC Assist, a curb-to-curb program that provides transportation for eligible persons with disabilities.

Operation of the fixed route and demand response/ADA paratransit services is overseen by the RTC and carried out through a contractor (MV Transportation). Maintenance, fueling and overall administrative services are provided by the Carson City Public Works Department and CAMPO.

There are four fixed routes which operate on one-hour headways from 6:30 AM to 7:30 PM Mondays through Fridays and 8:30 AM to 4:30 PM on Saturdays. Each route leaves the transfer plaza at the same time each run, and then meets back up at the transfer plaza in order to create more convenient access to all parts of the service area. The JAC Transfer Center also accommodates other transit systems (such as RTC Washoe INTERCITY, BlueGo, and the Silver State Mainline) in order to help create more seamless regional connections.

Fares are \$1.00 per one-way trip for adults; and seniors, persons with disabilities and youth may ride for only \$0.50 per one-way trip. Monthly and 10-ride bus passes are available for purchase. Transfers are free to customers with cash fares or 10-ride passes, and in addition, transfers can be used for free or reduced fares on some of the connecting intercity bus services, such as the RTC Intercity between Reno and Carson City, and the Valley & Lake Express between Carson City, South Lake Tahoe and Minden/Gardnerville.

There is a Senior Bus Pass program, funded through a grant from the Nevada Aging and Disability Services Division, which offers unlimited free rides on the fixed route system. Seniors (age 60+) must register for this annual pass.

JAC Assist is the ADA complementary paratransit service. This is "origin to destination" transportation service for persons with disabilities who cannot use the regular bus service. It is primarily curb to curb service, but door to door service is provided upon request. Individuals who wish to be considered for this service need to complete an application, have the information verified by a medical professional, and be certified by the transit system as ADA paratransit eligible. The cost for this service is \$2.00 for each one-way trip within $\frac{3}{4}$ mile of any fixed route. The cost for service for each one-way trip that has an origin or destination between $\frac{3}{4}$ mile, and one mile of any fixed route is \$4.00. JAC Assist tickets (10 for \$20) may be purchased in advance.

The bus fleet includes seven 35-foot fixed route buses and seven paratransit vehicles (from 21 to 24 feet long).

Ridership on the JAC was 195,160 passengers in FY 2017-18, which was a new ridership high for the system. Over the last five fiscal years, the fixed route transit system increased ridership approximately 3% per year. The JAC Assist paratransit system had a ridership of 28,188 passengers in FY 2017-18, also a ridership high for the system. The JAC Assist has increased an average of 8% per fiscal year over the last five years.³³

³³ JAC Transit Development and Coordinated Human Services Plan, P.37.

The transit system is funded through federal grants, city general fund, farebox revenues, State Aging and Disability Services Division grant, Department of Health Care Financing and Policy Agreement, and advertising revenues.

The following list of dates and events, obtained from news articles and the most current JAC Fact Sheet,³⁴ highlight development of the transit system: References for the timeline are provided in Appendix F.

- 2005: JAC began operation.
- 2007: JAC added a new transit stop and reduced the age to qualify for senior fares to 60.
- 2012: JAC made route adjustments to better serve the Nevada Health Centers and Parkway Professional Center.
- 2014: An extra hour of service was added to the weekday fixed route schedule.
- 2015: JAC celebrated tenth anniversary and offered free rides on the anniversary date.
- 2016: JAC launched a smartphone app to view route maps, schedules, fares, and track live bus departures and arrivals.
- 2017: Construction began on a new bus terminal and dispatch center. Formerly the buses were housed at the City Public Works corporate yard. The new site includes an 1,800-foot office and can accommodate 16 buses.
- 2018: JAC permanently relocated to new administrative office and bus terminal. Free bus rides were given from July 25 to July 29, 2018.
- 2018: The Carson City Rotary Club donated \$3,000, which served as the local funding share, for the purchase of five bus shelters. This local match was used for a federal grant of \$40,000. The bus shelters were installed in 2019.
- 2019: Based on the results of the *JAC Transit Development and Coordinated Human Services Plan Final Report*, a transit route extension and new northern route were approved by the Regional Transportation Commission. The proposed routes have not been implemented as of March 2020.

Current Transit Service

Current transit service in the area is a paratransit/ADA service providing deviated fixed route and medical transportation operated by Lyon County Human Services. The service schedules trips from the Fernley Senior Center to the Northern Nevada Medical Center three days per week (Monday, Wednesday, and Friday). A minimum 48-hour notice is required to schedule a pick-up appointment. This transit service is funded by:

- FTA administered through NDOT;
- Nevada Department of Health and Human Services, Aging and Disability Services Division;
- Lyon County (through grant requests to the FTA through NDOT); and
- farebox revenue.

³⁴ City of Carson, JAC Fact Sheet, undated, <https://www.carson.org/home/showdocument?id=54561> , referenced May 15, 2020.

Other Transit

Other transit systems or services in the area include:

- My Ride to Work – a private company providing bus/shuttle service to/from the Tahoe Reno Industrial Center
- RTC Washoe VANPOOL program, providing vanpooling opportunities that originate or terminate within Washoe County

NDOT completed a Transit Plan of the five northern Nevada counties including a focus on the Tahoe Reno Industrial Center, entitled the *Inter-County and Regional Transit Plan* which included recommendations for the employers of the Tahoe Reno Industrial Center to form a Transportation Management Association to coordinate transit to/from the industrial center.

Funding Recommendations

Based on the information gathered and discussed in the previous sections, the following recommendations are made for acquiring additional funding associated with future developments and regional funds available for roadway construction and improvements.

Funding for Future Developments

Impact fees for new developments are recommended to help finance the costs associated with capital improvement needs. A separate study or analysis should be completed (following all procedural requirements as stipulated by NRS) prior to implementing impact fees. More information on impact fees and requirements is contained in NRS 278B – *Impact Fees for New Development*.³⁵

Funding for Road Construction and Improvements

Funding recommendations for road construction and other types of road improvements are:

- **Road construction** – Data, such as that included in this TMP, are recommended to justify proposed road construction projects and the following funding avenues are recommended:
 - SADs can fund street construction, paving, installing curb and gutter, sidewalks, drainage improvements and other improvements.
 - Road construction projects on rural minor collector roads can be funded through the STGB Program, although this funding is limited and competitive.
- **Safety improvements** – HSIP funds, administered by NDOT, fund road improvements such as slope flattening/shoulder widening, flashing yellow arrows, rumble strips, and turn pockets with acceleration/deceleration lanes. These funds are administered competitively and require a data-driven justification, typically through a Road Safety Assessment or engineering analysis.
- **Transportation alternatives projects** – Projects such as pedestrian and bicycle facilities, SRTS projects, streetscape improvements, and other community improvement projects can be funded through the TAP, administered by NDOT. Funds are awarded on a competitive basis and projects should be supported by data-driven needs.

³⁵ Nevada Revised Statute, NRS 278 B – Impact Fees for New Development, <https://www.leg.state.nv.us/NRS/NRS-278B.html>, referenced May 15, 2020.

Other Recommendations

The City of Fernley should consider petitioning to join an MPO, either RTC Washoe or CAMPO. There are a number of advantages, discussed in this document, including consideration for project funding, technical assistance, participation in regional planning initiatives, and having a voice in regional planning.

Funding References

Information about potential funding sources was obtained from a variety of references which are summarized as follows:

- American Planning Association Nevada, Nevada Planning Guide, (2017), https://www.unr.edu/Documents/business/NLI/previous-workshops/Nevada_Planning_Guide_Final_2017.pdf
- Carson Area MPO, 2040 Regional Transportation Plan, <https://www.carson.org/home/showdocument?id=65348>
- Carson Now, “Jump Around Carson Makes Bus Route Adjustments,” October 17, 2012, <https://carsonnow.org/story/10/17/2012/jump-around-carson-city-makes-route-adjustments>
- Carson Now, “JAC celebrates a decade of service in Carson City,” September 30, 2015, <https://carsonnow.org/story/09/30/2015/jac-celebrates-decade-service-carson-city>
- Carson Now, “JAC launches new app for smart devices,” January 13, 2016, <https://carsonnow.org/story/01/13/2016/jac-launches-new-app-smart-devices>
- Carson Now, “Construction begins on new JAC station in East Carson City,” August 4, 2017, <https://carsonnow.org/story/08/04/2017/construction-begins-new-jac-station-east-carson-city>
- Carson Now, “Jump Around Carson transit celebrates relocation with free bus rides during Carson City Fair,” July 10, 2018, <https://carsonnow.org/story/07/10/2018/jump-around-carson-transit-celebrates-relocation-free-bus-rides-during-carson-city>
- Carson Now, “Carson City Rotary donates five bus shelters for Jump Around Carson (JAC),” May 18, 2019, <https://carsonnow.org/story/05/18/2019/carson-city-rotary-donates-five-shelter-buses-jump-around-carson-jac>
- City of Carson, JAC Fact Sheet, undated, <https://www.carson.org/home/showdocument?id=54561>
- City of Carson, Jump Around Carson website, <https://www.carson.org/residents/community-links/services/jac-jump-around-carson>
- City of Fernley FY 2019 – 2020 Budget, <https://www.cityoffernley.org/DocumentCenter/View/22183/Final-FY19-20-Budget-Book>
- City of Reno, Special Assessment Districts FAQs, <https://www.reno.gov/government/departments/public-works/capital-projects/faqs>
- Code of Federal Regulations, Title 23, Part 450, Subpart C – Metropolitan Transportation Planning and Programming, <https://www.law.cornell.edu/cfr/text/23/part-450/subpart-C>
- Economic & Planning Systems, Inc., City of Sparks 2019 Fiscal Impact Analysis Guidelines Memorandum, November 1, 2019, <https://cityofsparks.us/wp-content/uploads/2019/11/FIA-Submittal-Guidelines-Adopted-11-12-19.pdf>
- LSC Transportation Consultants, Inc., JAC Transit Development and Coordinated Human Services Plan Final Report, October 2019. <https://www.carson.org/home/showdocument?id=67972>
- Nevada Department of Transportation, Public Transit, <https://www.nevadadot.com/mobility/transit>
- Nevada Department of Transportation, Public Transit, NDOT State Management Plan for Sections 5311, 5310 and 5339 Assistance to Small Urbanized and Rural Area Programs, <https://www.nevadadot.com/home/showdocument?id=17544>

- Transportation Association of Canada, *Primer on Design and Implementation of Transit Services in Smaller Communities* , <https://tac-atc.ca/sites/tac-atc.ca/files/site/doc/resources/primer-january2016.pdf>
- Nevada Appeal, “Carson City Looking at expanding around Carson Bus Routes,” July 12, 2019, <https://www.nevadaappeal.com/news/carson-city/carson-city-looking-at-expanding-jump-around-carson-bus-routes/>
- Nevada Appeal, “Carson City Bus plan to add routes approved,” October 10, 2019, <https://www.nevadaappeal.com/news/carson-city/carson-city-bus-plan-to-add-routes-approved/>
- Nevada Federal Lands Access Program, <https://flh.fhwa.dot.gov/programs/flap/nv/>
- Nevada Revised Statute Chapter 271, Local Improvements, <https://www.leg.state.nv.us/NRS/NRS-271.html>
- Nevada Revised Statute 278B, Impact Fees for New Development, <https://www.leg.state.nv.us/NRS/NRS-278B.html>
- Nevada Legislature Research Division, Background Paper 83-4, General Improvement Districts, <https://www.leg.state.nv.us/Division/Research/Publications/Bkground/BP83-04.pdf>
- Nevada Department of Transportation, Transportation Alternatives Program, <https://www.nevadadot.com/projects-programs/transportation-alternatives-program>
- Nevada Department of Transportation, One Nevada Transportation Plan, Funding and Financing Draft, June 2017
- Nevada Department of Transportation, Planning and Needs Assessment, <https://www.nevadadot.com/projects-programs/transportation-alternatives-program/plana>
- RTC Southern Nevada MPO, 2017-2040 Regional Transportation Plan, <https://www.rtcnv.com/projects-initiatives/transportation-planning/2017-2040-regional-transportation-plan/>
- RTC Washoe MPO, 2040 Regional Transportation Plan, <https://www.rtcwashoe.com/mpo-projects/rtp/>
- Steinmann, Frederick , An Analysis of Special Assessment Districts in Nevada, Technical Report UCED 2017/18-18, University of Nevada, University Center for Economic Development, May 2018, <https://www.unr.edu/Documents/business/uced/technical-reports/statewide/An%20Analysis%20of%20Special%20Assessment%20Districts%20in%20Nevada%20-%20UCED%20Technical%20Report%202017-18-18.pdf>

APPENDIX N

PLANNING-LEVEL COST ESTIMATE DETAILS

**City of Fernley
Transportation Master Plan
Park-and-Ride**



**Planning Level
Estimate (5-Year)**

BID ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENDED AMOUNT
	PLANNING				
P1	Conduct Park and Ride Study	1	LS	\$29,000	\$29,000
	Planning Subtotal				\$29,000
	DESIGN				
D1	PS&E (Park and Ride Lot - 50 spaces) @12%	1	LS	\$29,000	\$29,000
	Design Subtotal				\$29,000
	CONSTRUCTION				
C1	Project Mobilization, Demobilization, and Off Site Staging Area @6%	1	LS	\$14,000	\$14,000
C2	Clearing and Grubbing	1	Acre	\$11,600	\$11,600
C3	Place 10" Aggregate Base	1,900	SY	\$40	\$76,000
C4	Construct Type 2 curb and gutter w/6" AB	670	LF	\$40	\$26,800
C5	Construct Commercial Driveway	250	SF	\$24	\$6,000
C6	Place 6-inch PG 64-28NV Plantmix Bituminous Pavement	16,500	SF	\$6	\$99,000
C7	Signs	4	EA	\$580	\$2,320
C8	Pavement Markings	1	LS	\$600	\$600
	Construction Subtotal				\$236,320
	Engineering During Construction				
EDC1	Construction Services @10%	1	LS	\$24,000	\$24,000
	EDC Subtotal				\$24,000
	CONTINGENCY				
	Contingency @25%	1	LS	\$80,000	\$80,000
	PROJECT PLANNING ESTIMATE*				
		Escalated 15.97% for 2025 (50 spaces):			\$398,320
		Escalated 15.97% for 2025 (25 spaces):			\$212,340
*Estimates for right of way and utility relocation to be completed separate of this estimate.					

Assumption: Increased paving section for future mass transit

City of Fernley Transportation Master Plan Main Street Improvements					Planning Level Estimate (5-Year)
BID ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENDED AMOUNT
	PLANNING				
P1	Midblock Crossing Studies	1	LS	\$12,000	\$12,000
	Planning Subtotal				\$12,000
	DESIGN				
D1	PS&E NDOT Approved @12%	1	LS	\$34,000	\$34,000
	Design Subtotal				\$34,000
	BICYCLE LANES CONSTRUCTION - MARIE DRIVE TO MILLER LANE				
C1	Project Mobilization, Demobilization, and Off Site Staging Area @6%	1	LS	\$10,000	\$10,000
C2	Clearing and Grubbing	0.40	Acre	\$11,600	\$4,640
C3	Place 10" Aggregate Base	1,600	SY	\$40	\$64,000
C4	Place 6-inch PG 64-28NV Plantmix Bituminous Pavement (Add on at edges of ex ac, Concern: transverse cracks in ex ac will extend into bike lane)	14,400	SF	\$6	\$86,400
C5	Signs	4	EA	\$580	\$2,320
C6	Striping	2,400	LF	\$0.90	\$2,160
C7	Pavement Markings	2	EA	\$1,200	\$2,400
	Construction - Marie Dr to Miller Ln Subtotal				\$171,920
	CROSSWALK CONSTRUCTION - MILLER LANE TO HARDIE LANE				
C8	Project Mobilization, Demobilization, and Off Site Staging Area @6%	1	LS	\$7,000	\$7,000
C9	Pedestrian Ramps	4	EA	\$4,300	\$17,200
C10	Flashing Beacon (Includes wiring/electrical)	4	EA	\$10,700	\$42,800
C11	Signs	28	EA	\$580	\$16,240
C12	Pavement Markings	1,300	LF	\$19	\$24,700
	Construction - Miller Ln to Hardie Ln Subtotal				\$107,940
	Engineering During Construction				
EDC1	Construction Services	1	LS	\$28,000	\$28,000
	EDC Subtotal				\$28,000
	CONTINGENCY				
	Contingency @25%	1	LS	\$89,000	\$89,000
	PROJECT PLANNING ESTIMATE*			Escalated 15.97% for 2025:	\$442,860
*Estimates for right of way and utility relocation to be completed separate of this estimate.					

Assumptions: 1200 foot project length; adding on bicycle lanes at edges of existing roadway; pedestrian ramps are only needed at the two new crossings

Challenge: Transverse cracks in existing pavement will likely extend into bike lane

City of Fernley
Transportation Master Plan
Cottonwood/US 95A Signal



Planning Level
Estimate (5-Year)

BID ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENDED AMOUNT
	DESIGN				
D1	PS&E NDOT Approved @12%	1	LS	\$38,000	\$38,000
	<i>Design Subtotal</i>				\$38,000
	CONSTRUCTION				
C1	Project Mobilization, Demobilization, and Off Site Staging Area @6%	1	LS	\$18,000	\$18,000
C2	Signalize Intersection (Includes poles, mast arms, brackets, signal lights, controller/power cabinets, signs, and electrical)	1	LS	\$290,000	\$290,000
C3	Signs	3	EA	\$580	\$1,740
C4	Pavement Markings	100	LF	\$20	\$2,000
	<i>Construction Subtotal</i>				\$311,740
	Engineering During Construction				
EDC1	Construction Services @10%	1	LS	\$32,000	\$32,000
	<i>EDC Subtotal</i>				\$32,000
	CONTINGENCY				
	Contingency @25%	1	LS	\$96,000	\$96,000
	PROJECT PLANNING ESTIMATE*			Escalated 15.97% for 2025:	\$477,740

**Estimates for right of way and utility relocation to be completed separate of this estimate.*

Assumptions: One left turn light (both directions of US95A will be red when Cottonwood is green); Assuming there is a transformer with additional capacity for the new signal lights nearby

**City of Fernley
Transportation Master Plan
Farm District Road Multi-Use Path Phase 4**



**Planning Level
Estimate (5-Year)**

BID ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENDED AMOUNT
	DESIGN				
D1	PS&E NDOT Approved @10%	1	LS	\$74,000	\$74,000
	Design Subtotal				\$74,000
	CONSTRUCTION				
C1	Project Mobilization, Demobilization, and Off Site Staging Area @6%	1	LS	\$42,000	\$42,000
C2	Multi-Use Path (1.85 miles; Includes clear/grub, 3" ac on 6" base, & striping)	98,000	SF	\$7.00	\$686,000
C3	Signs	5	EA	\$580	\$2,900
	Construction Subtotal				\$730,900
	Engineering During Construction				
EDC1	Construction Services @10%	1	LS	\$74,000	\$74,000
	EDC Subtotal				\$74,000
	CONTINGENCY				
	Contingency @25%	1	LS	\$220,000	\$220,000
	PROJECT PLANNING ESTIMATE*	Escalated 15.97% for 2025:			\$1,098,900
*Estimates for right of way and utility relocation to be completed separate of this estimate.					

Assumptions: Project length is 1.85 miles

City of Fernley Transportation Master Plan Roundabout Improvements					Planning Level Estimate (5-Year)
BID ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENDED AMOUNT
	PLANNING				
P1	Traffic Study & Evaluation of Alternatives	1	LS	\$116,000	\$116,000
	Planning Subtotal				\$116,000
	DESIGN				
D1	PS&E NDOT Approved @10%	1	LS	\$485,000	\$485,000
	Design Subtotal				\$485,000
	CONSTRUCTION				
C1	Project Mobilization, Demobilization, and Off Site Staging Area @6%	1	LS	\$178,000	\$178,000
C2	Traffic Control	1	LS	\$870,000	\$870,000
C3	Demolition (Includes: AC, concrete, clear & grub)	168,400	SF	\$5	\$842,000
C4	Place PCC Roundabout Planter Curb	380	LF	\$350	\$133,000
C5	Place PCC Roundabout Apron	5,100	SF	\$24	\$122,400
C6	Place PCC Sidewalk	14,900	SF	\$18	\$268,200
C7	Place PCC Ped Ramps	1,800	SF	\$30	\$54,000
C8	Place PCC Mountable Curb	460	LF	\$100	\$46,000
C9	Place PCC Median Curb - Type 3	3,300	LF	\$35	\$115,500
C10	Place PCC Island Pavement	27,600	SF	\$18	\$496,800
C11	Place PCC Curb and Gutter - Type 8	2,400	LF	\$64	\$153,600
C12	Place 14-inch Aggregate Base Course	119,000	SF	\$4.10	\$487,900
C13	Place 10-inch PG 64-28NV Plantmix Bituminous Pavement 75 Blow	119,000	SF	\$8.70	\$1,035,300
C14	Signs	8	EA	\$580	\$4,640
C15	Pavement Markings	1	LS	\$22,000	\$22,000
C16	Crosswalk & Stop Bar Thermoplastic	1,000	LF	\$18	\$18,000
	Construction Subtotal				\$4,847,340
	Engineering During Construction				
EDC1	Construction Services @10%	1	LS	\$485,000	\$485,000
	EDC Subtotal				\$485,000
	CONTINGENCY				
	Contingency @25%	1	LS	\$1,484,000	\$1,484,000
	PROJECT PLANNING ESTIMATE*	Escalated 15.97% for 2025 (Two Lanes):			\$7,417,340
		Escalated 15.97% for 2025 (One Lane):			\$5,243,675
*Estimates for right of way and utility relocation to be completed separate of this estimate.					

Assumptions: No landscaping is included and some signage can be re-used

Challenges: To fit additional lanes, radii of all four outer-most free right-turn lanes could change resulting in the speed limit on these being reduced; Increased width of crosswalks due to additional lanes may reduce pedestrian safety; It is uncertain if this intersection is currently part of a bicycle route but if it is, additional lanes will further complicate bicycle travel through the intersection.

City of Fernley Transportation Master Plan US 95A Improvements					Planning Level Estimate (5-Year)
BID ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENDED AMOUNT
	PLANNING				
P1	Capacity Assessment	1	LS	\$29,000	\$29,000
	Planning Subtotal				\$29,000
	DESIGN				
D1	PS&E NDOT Approved @10%	1	LS	\$102,000	\$102,000
	Design Subtotal				\$102,000
	CONSTRUCTION				
C1	Project Mobilization, Demobilization, and Off Site Staging Area @6%	1	LS	\$57,000	\$57,000
C2	Demolition (Includes: Concrete, clear & grub)	4,400	SF	\$5	\$22,000
C3	Relocate Traffic Signal Poles & Install Longer Arms	1	LS	\$90,000	\$90,000
C4	Additional Traffic Signal Lights	3	EA	\$1,200	\$3,600
C5	Place 14-inch Aggregate Base Course	52,000	SF	\$4.10	\$213,200
C6	Place 10-inch PG 64-28NV Plantmix Bituminous Pavement	52,000	SF	\$8.70	\$452,400
C7	Place PCC C&G - Type 1	735	LF	\$50	\$36,750
C8	Place PCC Sidewalk	4,400	SF	\$18	\$79,200
C9	Pedestrian Ramps	8	EA	\$4,300	\$34,400
C10	Signs	6	EA	\$580	\$3,480
C11	Striping	1,300	LF	\$1	\$1,300
C12	Pavement Markings	1	LS	\$8,100	\$8,100
C13	Crosswalk & Stop Bar Thermoplastic	1,000	LF	\$18	\$18,000
	Construction Subtotal				\$1,019,430
	Engineering During Construction				
EDC1	Construction Services @10%	1	LS	\$102,000	\$102,000
	EDC Subtotal				\$102,000
	CONTINGENCY				
	Contingency @25%	1	LS	\$314,000	\$314,000
	PROJECT PLANNING ESTIMATE*	Escalated 15.97% for 2025:			\$1,566,430
*Estimates for right of way and utility relocation to be completed separate of this estimate.					

Assumptions: At Freemont/Chisholm, four turn lanes total are being added, one left turn & one right turn for US95A towards I-80, one left turn & one right turn for US95A away from 80; Length at Freemont/Chisholm is 420 ft of sidewalk/C&G being removed/replaced due to each of those directions widening (210 ft on the west side of southbound lane and 210ft on the east side of northbound); At Newlands, two turn lanes total are being added, one left turn for US95A towards 80 and one right turn for US95A away from 80; Length at Newlands is 315 ft of sidewalk/C&G being removed/replaced due to each of those directions widening (140 for the left turn and 175 for the right turn)

Challenges: The Penny Ln intersection may need to be reconfigured due to the widening of US 95A towards 80 at Freemont/Chisholm; A slight horizontal curve or slight additional widening of US 95A just north of Freemont/Chisholm and just north of Newlands may be needed to accommodate shift in thru-travel lanes

City of Fernley
Transportation Master Plan
Sage Street Connectivity



Planning Level
Estimate (10-Year)

BID ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENDED AMOUNT
	DESIGN				
D1	PS&E @10%	1	LS	\$157,000	\$157,000
	<i>Design Subtotal</i>				\$157,000
	CONSTRUCTION				
C1	Project Mobilization, Demobilization, and Off Site Staging Area @6%	1	LS	\$89,000	\$89,000
C2	Canal Crossing Approaches	1	LS	\$95,000	\$95,000
C3	Canal Crossing Structure (Carol Way, concrete, 40 ft wide)	4,700	SF	\$210	\$987,000
C4	Place 8-inch Aggregate Base Course	38,500	SF	\$4.70	\$180,950
C5	Place 4-inch PG 64-28NV Plantmix Bituminous Pavement	38,500	SF	\$5.40	\$207,900
C6	Signs	2	EA	\$700	\$1,400
C7	Striping	3,300	LF	\$1	\$3,300
C8	Pavement Markings	1	EA	\$480	\$480
	<i>Construction Subtotal</i>				\$1,565,030
	Engineering During Construction				
EDC1	Construction Services @10%	1	LS	\$157,000	\$157,000
	<i>EDC Subtotal</i>				\$157,000
	CONTINGENCY				
	Contingency @25%	1	LS	\$470,000	\$470,000
	PROJECT PLANNING ESTIMATE*	Escalated 34.57% for 2030 (Carol Way):			\$2,349,030
		Escalated 34.57% for 2030 (Stock Ln):			\$2,118,860

**Estimates for right of way and utility relocation to be completed separate of this estimate.*

Assumptions: Bridge dimensions are 118 ft long, 40 feet wide to allow for future sidewalk and bike lanes; At Carol Way, the connecting road length is 950 ft; At Stock Lane, the connecting road length is 570 ft; Width for bike lanes is included for both options; For the Stock Lane option stop control is included at the Sage St. tie-in

Challenges: Permitting for a bridge over the Truckee Canal; If Stock Lane is chosen, then Stock Lane may need to be paved to Carol Way and possibly re-paved all the way to Truckee Lane

City of Fernley Transportation Master Plan Desert Shadows Improvements					Planning Level Estimate (10-Year)
BID ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENDED AMOUNT
	DESIGN				
D1	PS&E @10%	1	LS	\$1,040,000	\$1,040,000
	Design Subtotal				\$1,040,000
	CONSTRUCTION PHASE 1: MULL LN TO HIGH DESERT RD				
C1	Project Mobilization, Demobilization, and Off Site Staging Area @6%	1	LS	\$233,000	\$233,000
C2	Multi-Use Path (2 miles)	1	LS	\$856,000	\$856,000
C3	Place 8-inch Aggregate Base Course	254,000	SF	\$4.70	\$1,193,800
C4	Place 5-inch PG 64-28NV Plantmix Bituminous Pavement	254,000	SF	\$6.70	\$1,701,800
C5	Place 18" Culvert	144	LF	\$210	\$30,240
C6	Place 36" Culvert	108	LF	\$910	\$98,280
	Construction Phase 1 Subtotal				\$4,113,120
	CONSTRUCTION PHASE 2: HIGH DESERT RD TO GUSTAFSON RD				
C7	Project Mobilization, Demobilization, and Off Site Staging Area @6%	1	LS	\$173,000	\$173,000
C8	Multi-Use Path (2.3 miles)	1	LS	\$984,000	\$984,000
C9	Place 8-inch Aggregate Base Course	146,000	SF	\$4.70	\$686,200
C10	Place 5-inch PG 64-28NV Plantmix Bituminous Pavement	146,000	SF	\$6.70	\$978,200
C11	Place 18" Culvert	144	LF	\$210	\$30,240
C12	Place 36" Culvert	32	LF	\$910	\$29,120
C13	Place Box Culvert	108	LF	\$1,620	\$174,960
	Construction Phase 2 Subtotal				\$3,055,720
	CONSTRUCTION PHASE 3: GUSTAFSON RD TO FARM DISTRICT RD				
C14	Project Mobilization, Demobilization, and Off Site Staging Area @6%	1	LS	\$183,000	\$183,000
C15	Multi-Use Path (2.5 miles)	1	LS	\$1,070,000	\$1,070,000
C16	Place 8-inch Aggregate Base Course	159,000	SF	\$4.70	\$747,300
C17	Place 5-inch PG 64-28NV Plantmix Bituminous Pavement	159,000	SF	\$6.70	\$1,065,300
C18	Place 18" Culvert	36	LF	\$210	\$7,560
C19	Place 36" Culvert	36	LF	\$910	\$32,760
C20	Place Box Culvert	72	LF	\$1,620	\$116,640
	Construction Phase 3 Subtotal				\$3,222,560
	Engineering During Construction				
EDC1	Construction Services @10%	1	LS	\$1,040,000	\$1,040,000
	EDC Subtotal				\$1,040,000
	CONTINGENCY				
	Contingency @25%	1	LS	\$2,313,000	\$2,313,000
	PROJECT PLANNING ESTIMATE*			Escalated 34.57% for 2030:	\$14,784,400
*Estimates for right of way and utility relocation to be completed separate of this estimate.					

Assumptions: Phase 1 length is 2 miles; Phase 2 length is 2.3 miles; Phase 3 length is 2.5 miles

Challenges: A minimum road section is proposed assuming limited residential traffic but more industrial traffic is possible depending on future development; No additional bridge is proposed so congestion at the Farm District Road bridge may become a problem in time

City of Fernley Transportation Master Plan Railroad Underpass Improvements					Planning Level Estimate (10-Year)
BID ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENDED AMOUNT
	DESIGN & PERMITTING				
D1	PS&E NDOT Approved & Union Pacific Permitting @12%	1	LS	\$1,806,000	\$1,806,000
	Design & Permitting Subtotal				\$1,806,000
	CONSTRUCTION				
C1	Project Mobilization, Demobilization, and Off Site Staging Area @6%	1	LS	\$852,000	\$852,000
C2	Widen Underpass	1	LS	\$10,802,000	\$10,802,000
C3	Clearing and grubbing	10.00	Acre	\$13,500	\$135,000
C4	Place 10" Aggregate Base	5,400	SY	\$46	\$248,400
C5	Place 6-inch PG 64-28NV Plantmix Bituminous Pavement (Add on at edges of ex ac, concern: transverse cracks in ex ac will extend into bike lane)	48,000	SF	\$7	\$336,000
C6	Place PCC C&G - Type 1	8,200	LF	\$60	\$492,000
C7	12-Inch PVC Storm Drain	150	LF	\$130	\$19,500
C8	36-Inch RCP Irrigation Pipe	4,100	LF	\$220	\$902,000
C9	48-Inch Type 1A Storm Drain Manhole	8	EA	\$6,800	\$54,400
C10	Type 4R Catch Basin	16	EA	\$4,600	\$73,600
C11	Place PCC Sidewalk	49,100	SF	\$20	\$982,000
C12	Commerical Driveway Approach	7	EA	\$2,700	\$18,900
C13	Pedestrian Ramps	16	EA	\$4,900	\$78,400
C14	Signs	14	EA	\$700	\$9,800
C15	Striping	8,200	LF	\$1.00	\$8,200
C16	Pavement Markings	1,600	LF	\$22	\$35,200
	Construction Subtotal				\$15,047,400
	Engineering During Construction				
EDC1	Construction Services @10%	1	LS	\$1,806,000	\$1,806,000
	EDC Subtotal				\$1,806,000
	CONTINGENCY				
	Contingency @25%	1	LS	\$4,665,000	\$4,665,000
	PROJECT PLANNING ESTIMATE*			Escalated 34.57% for 2030:	\$23,324,400
*Estimates for right of way and utility relocation to be completed separate of this estimate.					

Assumptions: Project length is approximately 0.75 miles including overlap with Main St project; Three crosswalks at some intersections instead of four (only crossing Main Street at Truckee/Marie/Stock from corner instead of two); Adding on bike lanes at edges of existing roadway

Challenges: Transverse cracks in existing ac will likely extend into bike lane; Widening the underpass may not be allowed by UPRR thus a second smaller underpass for ped/bike use may need to be added instead and the existing underpass for vehicular traffic may need to be refurbished (this is similar to the "mousehole" in Truckee)

City of Fernley Transportation Master Plan Bicycle Improvements (West)					Planning Level Estimate (10-Year)
BID ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENDED AMOUNT
	DESIGN				
D1	NDOT Approved PS&E	1	LS	\$60,000	\$60,000
	Design Subtotal				\$60,000
	CONSTRUCTION				
C1	Project Mobilization, Demobilization, and Off Site Staging Area @6%	1	LS	\$34,000	\$34,000
C2	Clearing and grubbing	7.50	Acre	\$13,500	\$101,250
C3	Place 10" Aggregate Base	4,040	SY	\$46	\$185,840
C4	Place 6-inch PG 64-28NV Plantmix Bituminous Pavement (Add on at edges of ex ac, concern: transverse cracks in ex ac will extend into bike lane)	36,360	SF	\$7	\$254,520
C5	Signs	6	EA	\$700	\$4,200
C6	Striping	3,200	LF	\$1.00	\$3,200
C7	Pavement Markings	9	EA	\$1,350	\$12,150
	Construction Subtotal				\$595,160
	Engineering During Construction				
EDC1	Construction Services @10%	1	LS	\$60,000	\$60,000
	EDC Subtotal				\$60,000
	CONTINGENCY				
	Contingency @25%	1	LS	\$179,000	\$179,000
	PROJECT PLANNING ESTIMATE*			Escalated 34.57% for 2030:	\$894,160
*Estimates for right of way and utility relocation to be completed separate of this estimate.					

Assumptions: Project length is approximately 0.6 miles with re-use of some portions of highway that already wide enough (see below); Improving existing paved shoulders where wide enough so the shoulder provides dual purpose as a marked bike lane (per recommendation of NDOT's Lyon County Bicycle Plan, June 2016 - 6.1.1.3 and like Pyramid Highway southbound in vicinity of 5035 NV-445 Sparks, Nevada)

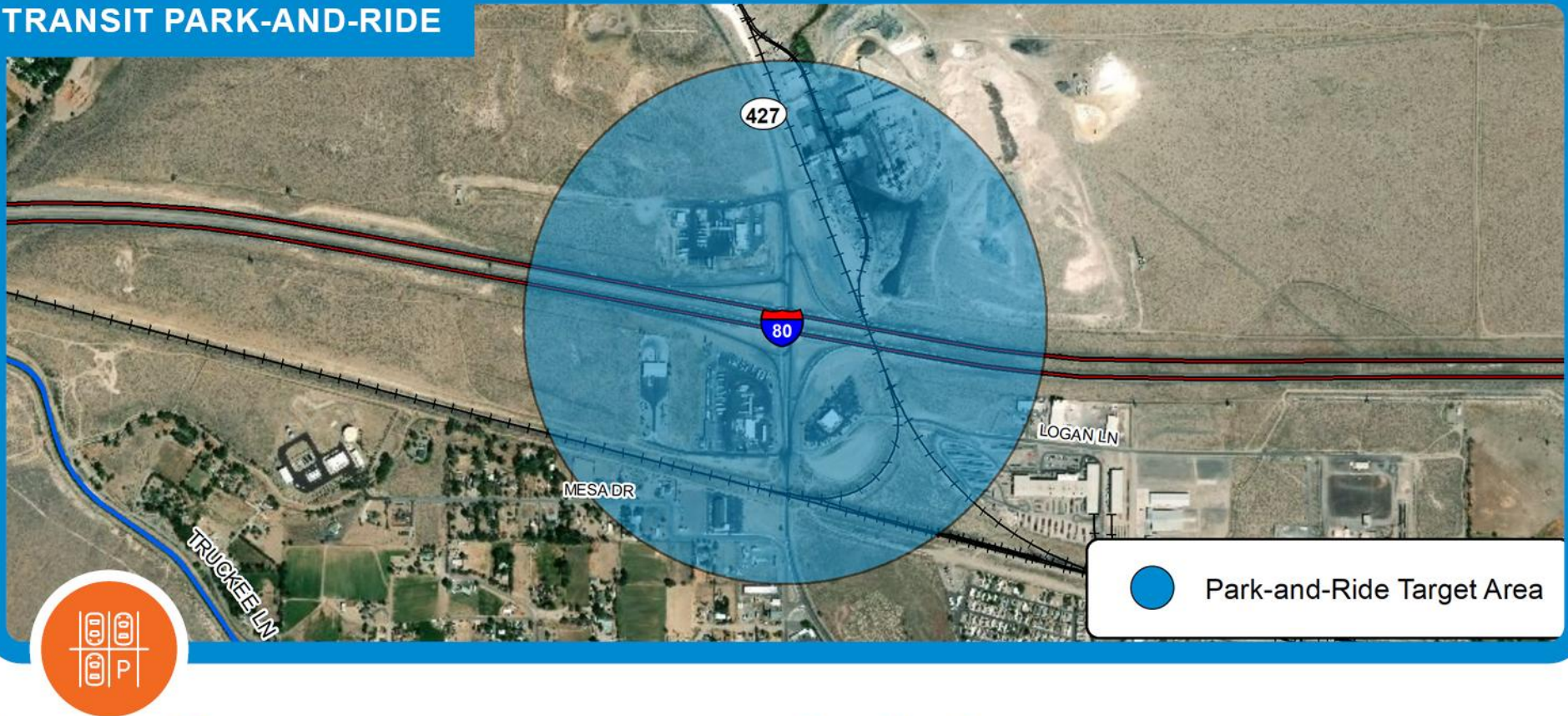
Challenges: Taking the bike lane to the Washoe County line is outside the jurisdiction of the City of Fernley and leaves cyclists without a designated bike lane or marked route until they reach Wadsworth

APPENDIX O

RECOMMENDED IMPROVEMENT PROJECT SUMMARIES

RECOMMENDED IMPROVEMENT:

TRANSIT PARK-AND-RIDE



Improvement Type:

Transit

Project Description:

Conduct a park-and-ride study to identify the necessity of and the preferred location for construction of a park-and-ride facility for commuters to the Tahoe Reno Industrial Center and the Reno-Sparks area

Lead Agency:

City of Fernley

Planning-Level Cost Estimate:

\$399,000 (50-space lot); \$213,000 (25-space lot)

Considerations:

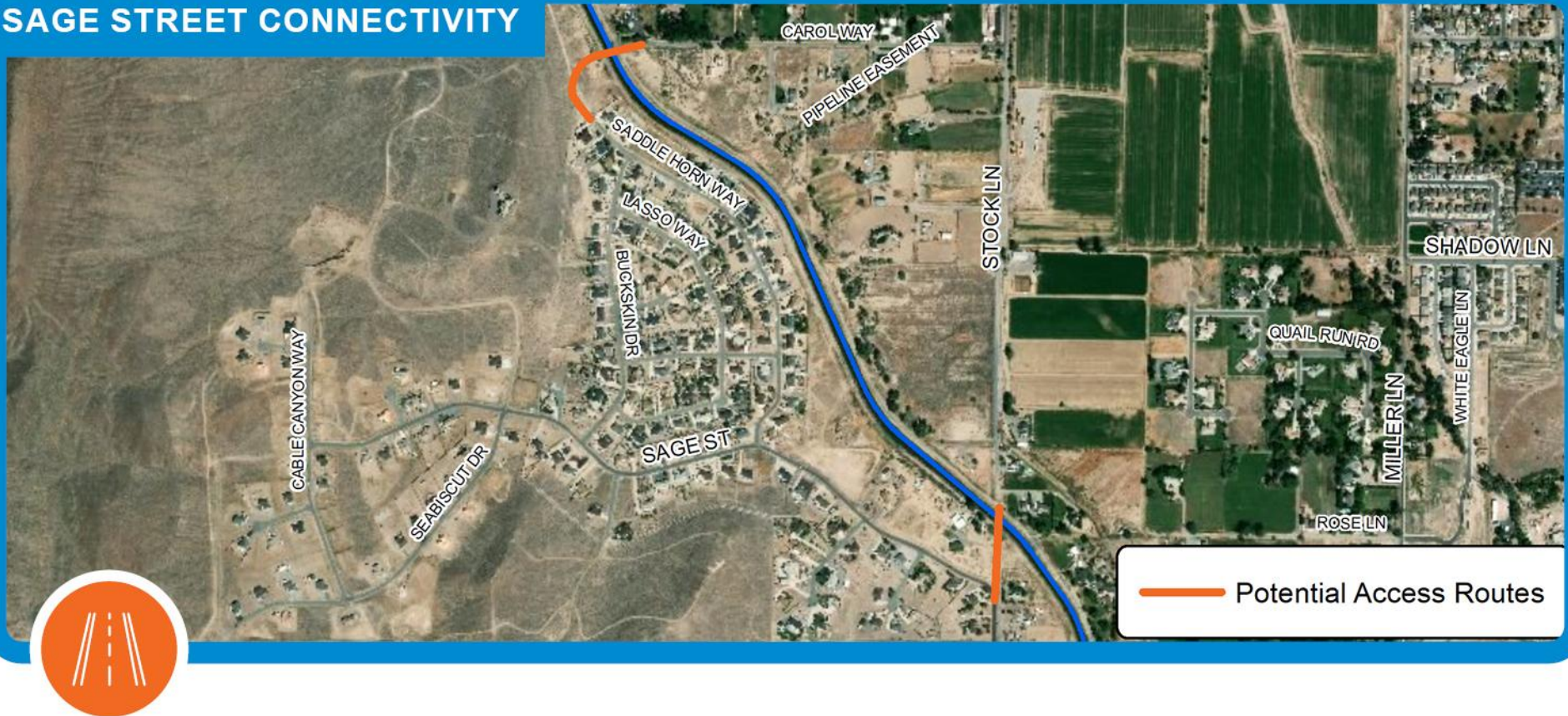
Feasibility and cost of ROW (if required) for determined location. Consider amenities that would enhance the park-and-ride area such as bathrooms, lighting, bicycle lockers, etc. The park-and-ride facility will support carpooling and transit use while decreasing vehicle congestion along I-80 and surrounding major roadways throughout the transportation network.

Suggested Action:

Coordinate with the Tahoe Reno Industrial Center and seek public-private partnerships to help accomplish the study and project.

RECOMMENDED IMPROVEMENT:

SAGE STREET CONNECTIVITY



Improvement Type:

Roadway Capacity and Safety

Project Description:

Construct paved connection over the Truckee Canal to provide secondary access to Sage Street neighborhood

Lead Agency:

City of Fernley

Planning-Level Cost Estimate:

\$2,350,000 (Carol Way); \$2,119,000 (Stock Lane)

Considerations:

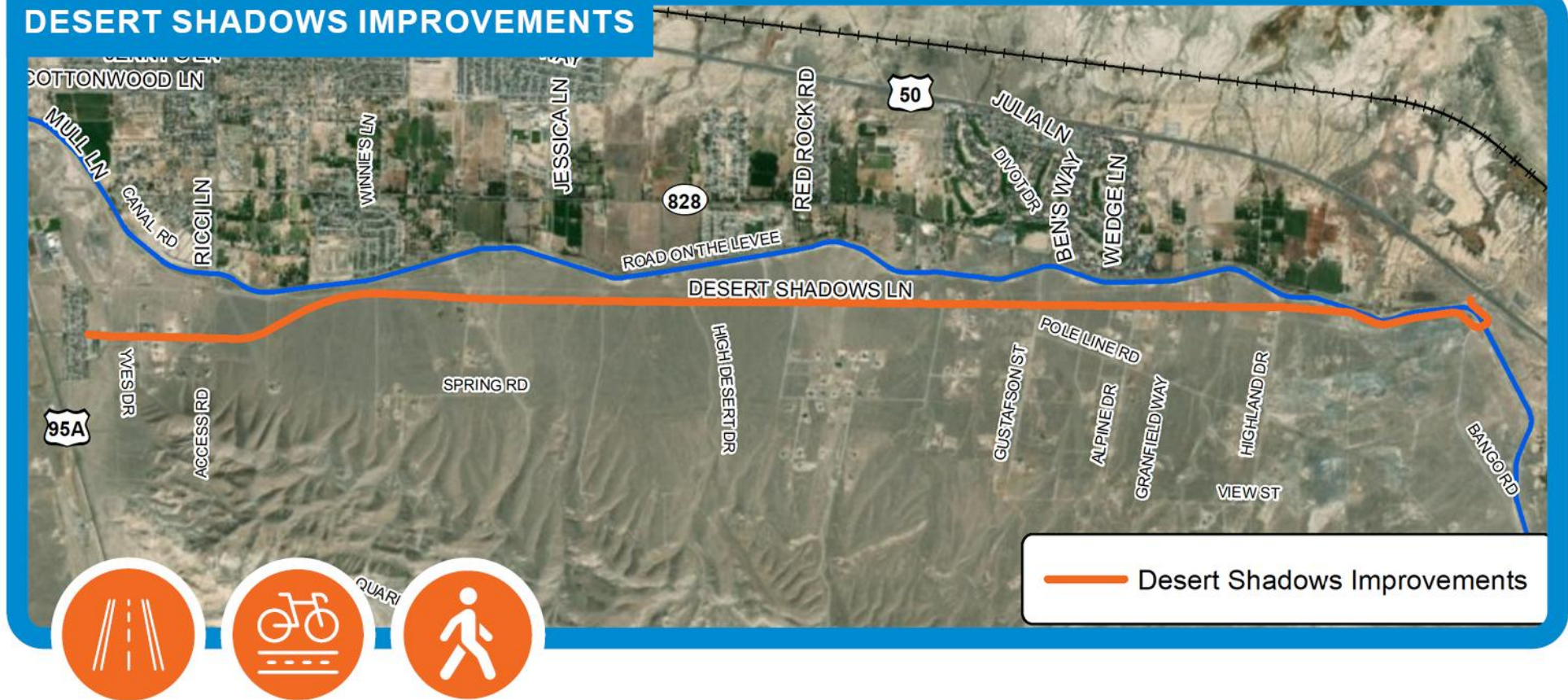
Feasibility, cost of ROW (if required) for determined location, and forecasted future growth areas. Each potential location may require roadway extension and/or paving to reach a canal crossing. This canal crossing will provide increased connectivity and better emergency response access to the area. Potential locations include Stock Lane or Carol Way

Suggested Action:

Evaluate alternatives to provide secondary access to the neighborhood. Perform cost-benefit analysis on chosen alternatives.

RECOMMENDED IMPROVEMENT:

DESERT SHADOWS IMPROVEMENTS



Improvement Type:

Paving; New Roadway; Multi-Use Path

Project Description:

Pave Desert Shadows Lane and provide a multi-use path for the extents.

Lead Agency:

City of Fernley

Planning-Level Cost Estimate:

\$14,785,000

Considerations:

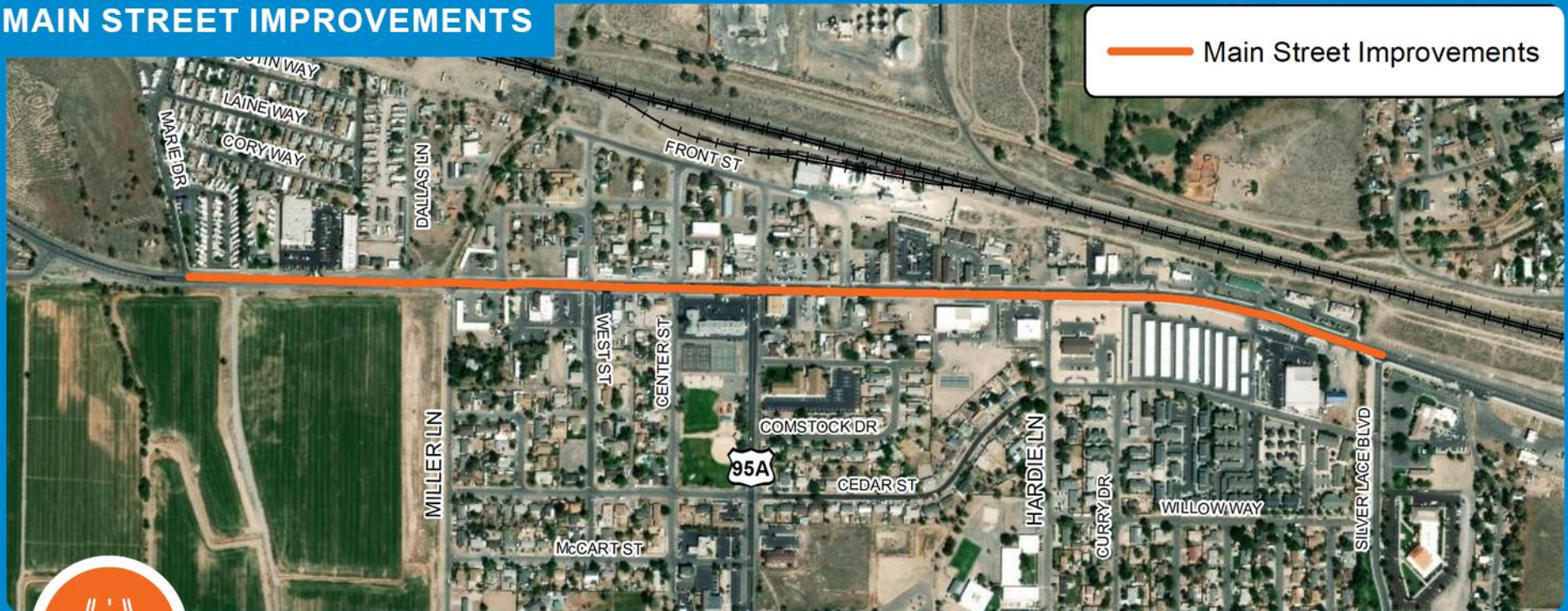
Cost of ROW for determined location. Forecast the ultimate cross-section of roadway and multi-use path. The roadway and path improvements promote active transportation in the community and provide additional East-West connection throughout Fernley. The area south of Desert Shadows Lane will have increased access and potential for future development. The paving of the roadway helps decrease emergency response time and potential issues with road conditions.

Suggested Action:

Phase the project starting from the western most connection near US 95A and moving eastward to US 50A.

RECOMMENDED IMPROVEMENT:

MAIN STREET IMPROVEMENTS



Improvement Type:

Bicycle Lane; Crosswalks; Pedestrian Signals

Project Description:

1. Extend bicycle lanes on Main Street from Miller Lane to Marie Drive.
2. Upgrade 10 existing marked crosswalks with additional signage and painted roadway markings that cross Main Street/US 50A from Miller Lane to Hardie Lane.
3. Provide/reconstruct up to two crossings along Main Street (US 50A/US 95A) downtown to be signalized/flashing.

Lead Agency:

Nevada Department of Transportation

Planning-Level Cost Estimate:

\$443,000

Considerations:

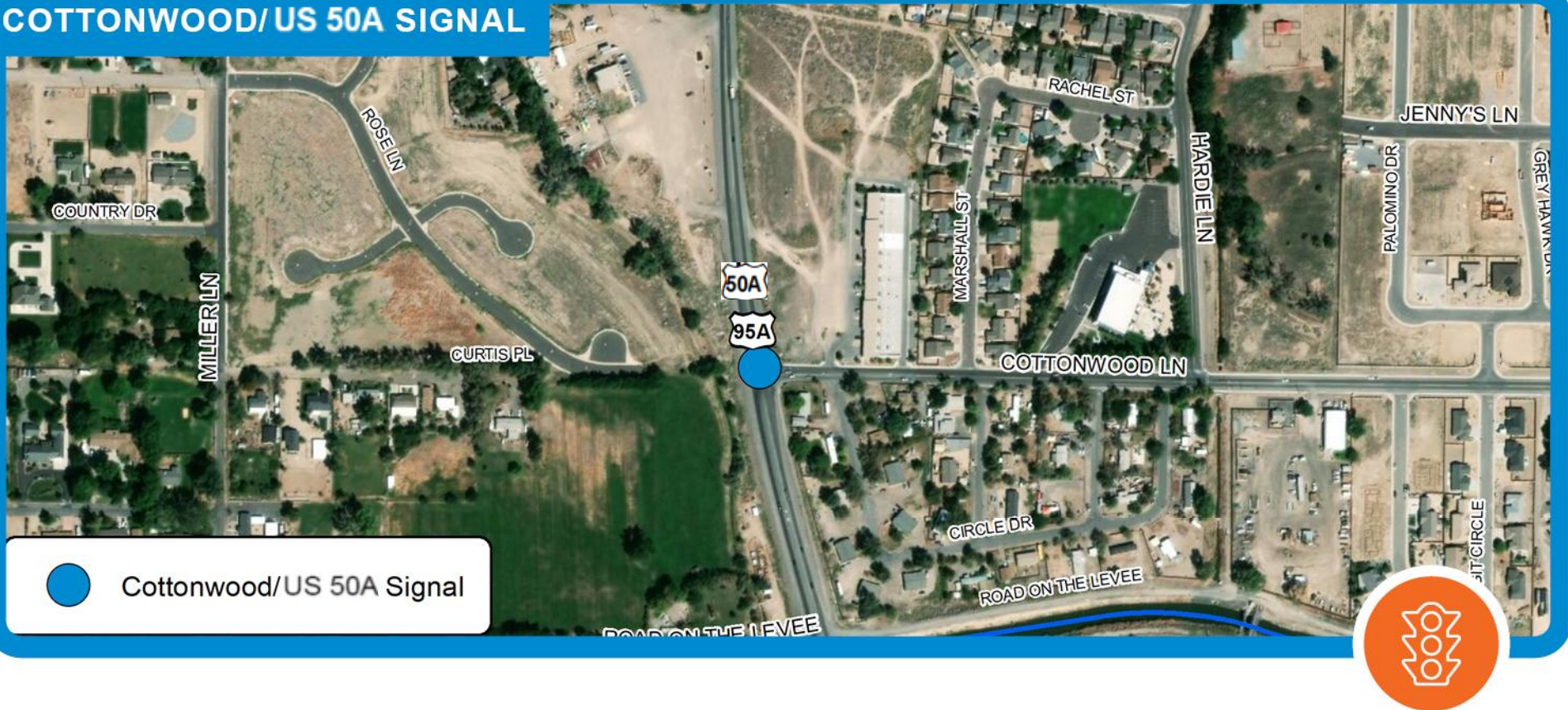
This project helps make multimodal connections and provides a safer, more accessible downtown destination area for the City.

Suggested Action:

Pedestrian data should be gathered to help inform the most desirable locations for signalized/flashing crossings along Main Street. Coordinate with NDOT to determine and implement best practices.

RECOMMENDED IMPROVEMENT:

COTTONWOOD/US 50A SIGNAL



Improvement Type:

Traffic Signal

Project Description:

Coordinate with NDOT to signalize the Cottonwood Lane/US 50A intersection

Lead Agency:

Nevada Department of Transportation

Planning-Level Cost Estimate:

\$478,000

Considerations:

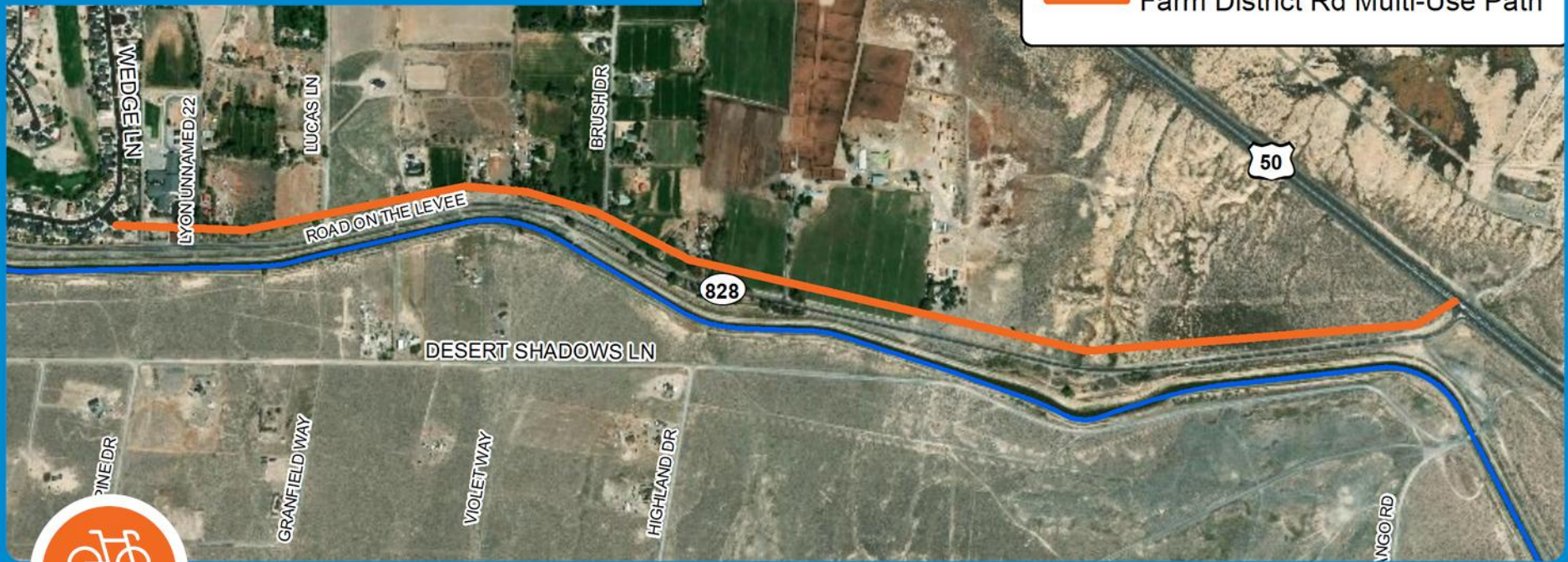
The intersection currently meets signal warrants per the MUTCD. Evaluate the possibility of developing a fourth leg of the intersection for a potential future connection to the west to Rose Lane. This project will improve traffic operations along Cottonwood Lane and US 50A/US 95A.

Suggested Action:

Coordinate with NDOT.

RECOMMENDED IMPROVEMENT:

FARM DISTRICT ROAD MULTI-USE PATH



Improvement Type:

Multi-Use Path

Project Description:

Extend the Farm District Road multi-use path from East Valley Elementary School to US 50 (Phase 4). There is an existing programmed NDOT project (LY20140001) that extends the path 1.75 miles from Crimson Road to Jasmine Lane, and Phase 3 of the project extends the path to East Valley Elementary School.

Lead Agency:

Nevada Department of Transportation

Planning-Level Cost Estimate:

\$1,099,000

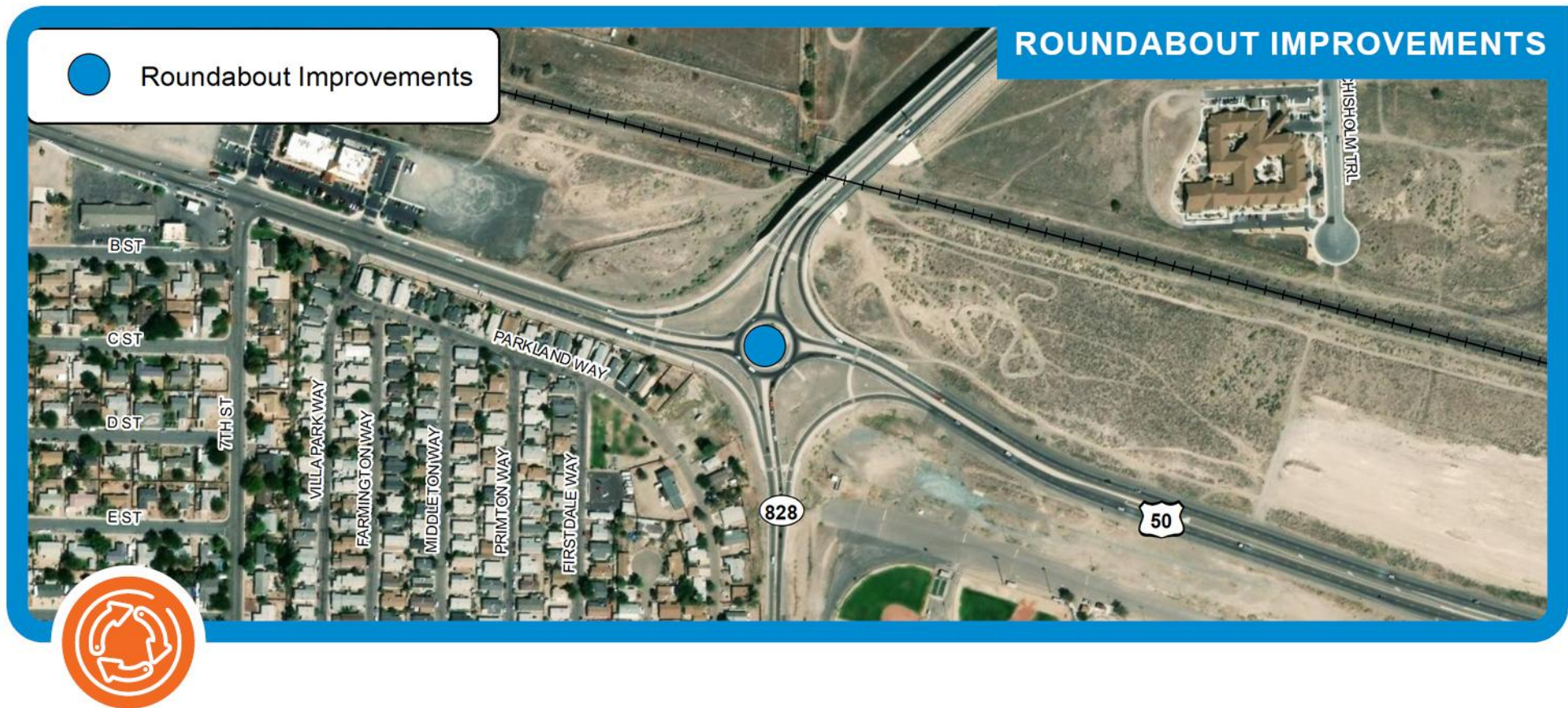
Considerations:

Determine the ultimate desired cross-section of roadway and multi-use path. This project will promote active transportation and network connectivity for the transportation system, particularly in the east-west direction. The path will connect schools and neighborhoods as well as major traveled roadways.

Suggested Action:

Coordinate with NDOT to ensure desired project completion.

RECOMMENDED IMPROVEMENT:



Improvement Type:

Intersection Improvement

Project Description:

Evaluate and redesign roundabout at Main Street/US 50A/Farm District Road for improved operations, capacity and safety.

Lead Agency:

Nevada Department of Transportation

Planning-Level Cost Estimate:

\$7,418,000 (two-lane roundabout); \$5,244,000 (one-lane roundabout)

Considerations:

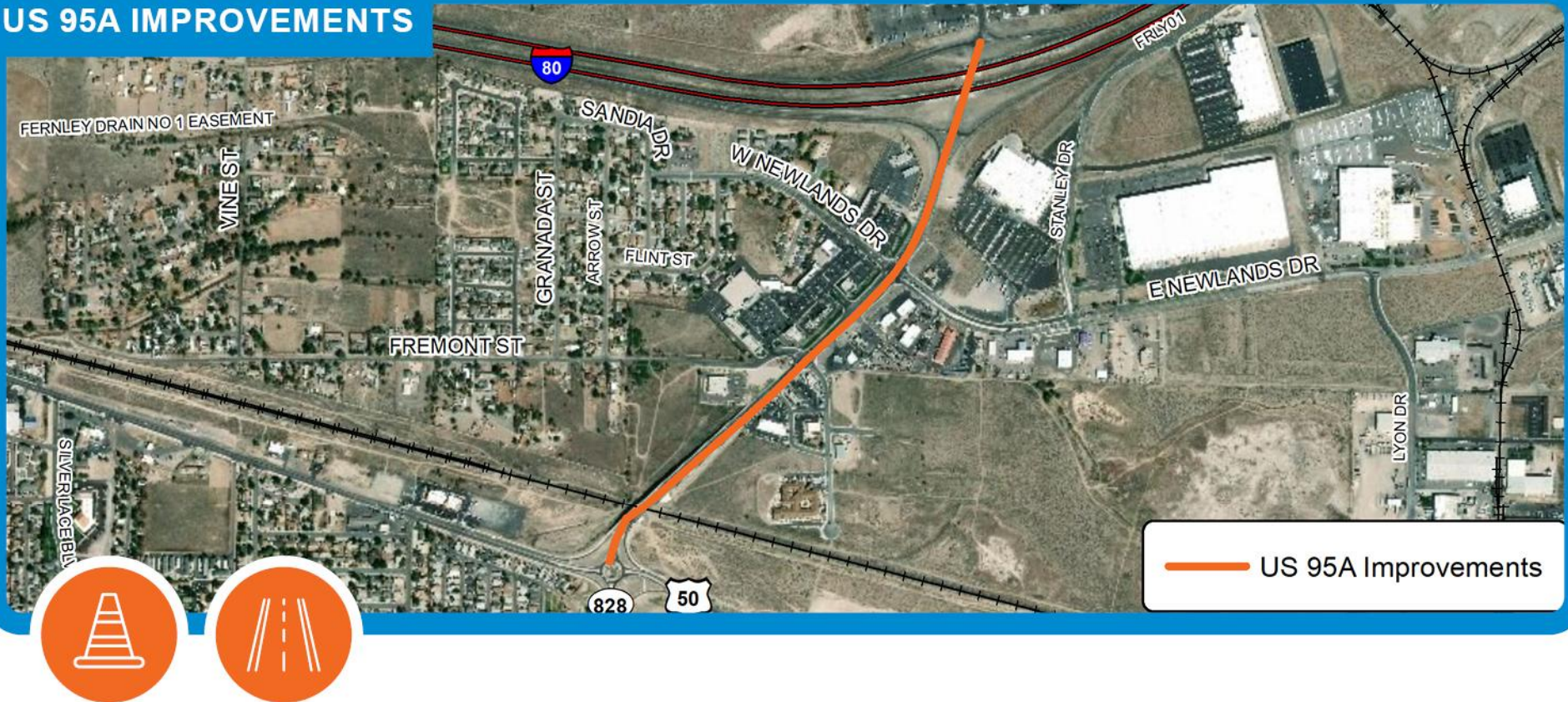
Consider a roundabout design that allows for additional capacity and safety. Improving conditions at the roundabout will likely help alleviate congestion, capacity, and safety concerns experienced throughout the transportation network nearby as well.

Suggested Action:

Coordinate with NDOT specifically on best practices for high-capacity roundabouts.

RECOMMENDED IMPROVEMENT:

US 95A IMPROVEMENTS



Improvement Type:

Roadway Capacity and Safety

Project Description:

Assess capacity and provide improvements to US 95A between the US 50A/US 95A/Farm District Road roundabout and I-80 to provide increased capacity and safety.

Lead Agency:

Nevada Department of Transportation

Planning-Level Cost Estimate:

\$1,567,000

Considerations:

Evaluate short- and long-term improvements that could be made. Improvements may include signal retiming, additional turn lanes, or other capacity improvements. This project will help alleviate congestion for one of the more congested areas in the City and a segment of roadway that is currently LOS E during peak hours.

Suggested Action:

Coordinate with NDOT and take into consideration future growth in the area.

RECOMMENDED IMPROVEMENT:

RAILROAD UNDERPASS IMPROVEMENTS



Improvement Type:

Roadway Capacity and Safety

Project Description:

Widen the railroad underpass on Main Street; consider multi-modal improvements to Main Street between Pilot Road and Miller Lane (approximately 0.75 miles) for increased capacity and safety

Lead Agency:

Nevada Department of Transportation

Planning-Level Cost Estimate:

\$23,325,000

Considerations:

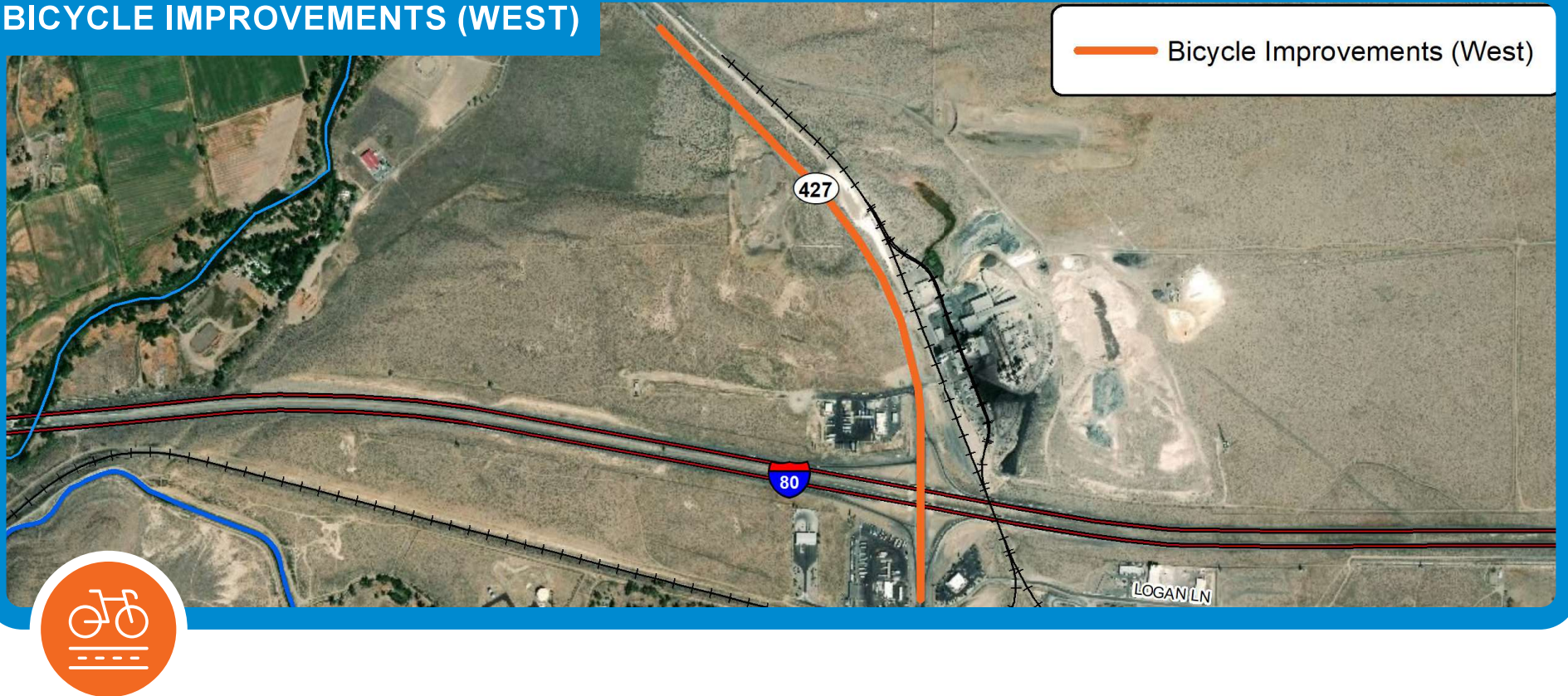
This project will help alleviate congestion from one of the more congested roadway segments in Fernley, and eliminate the bottleneck created by the narrow underpass (one lane in each direction and a substandard sidewalk). Pedestrian and bicycle facilities should also be included for multi-modal connectivity and accommodation.

Suggested Action:

Coordinate with NDOT and UPRR for recommended improvements.

RECOMMENDED IMPROVEMENT:

BICYCLE IMPROVEMENTS (WEST)



Improvement Type:

Bicycle Facilities

Project Description:

Improve Main Street/SR 427 to provide bicycle facilities from Fernley to the Lyon County line to connect eventually to the proposed future Tahoe Pyramid Trail

Lead Agency:

Nevada Department of Transportation

Planning-Level Cost Estimate:

\$895,000

Considerations:

Consider making bicycle improvements to the proposed Tahoe Pyramid Trail connection at Natchez Elementary School in Wadsworth in coordination with Washoe County. This project will promote active transportation and network connectivity to the transportation network.

Suggested Action:

Coordinate with NDOT, Washoe County and City of Wadsworth.



CITY OF FERNLEY

Planning Commission AGENDA REPORT

Meeting Date: October 11, 2023

REPORT TO: Fernley Planning Commission

REPORT FROM: Michele Rambo, Planning Director

FINANCIAL IMPACT:

Yes: No:

CURRENTLY BUDGETED:

Yes: No:

FUND/ACCOUNT:

N/A

ACTION REQUESTED: Receive/File

AGENDA ITEM:

Training

AGENDA ITEM BRIEF:

"Land Use Policy Could Help Solve the American West's Water Crisis"

RECOMMENDED MOTION:

BUSINESS IMPACT (per NRS Chapter 237):

N/A

See attached report for background, analysis, alternatives.

ALTERNATIVES:

BACKGROUND:

For Planning Commission's review

RELEVANT LAWS, STATUTES, AND REGULATIONS:

FINANCIAL IMPLICATIONS:

ATTACHMENTS:

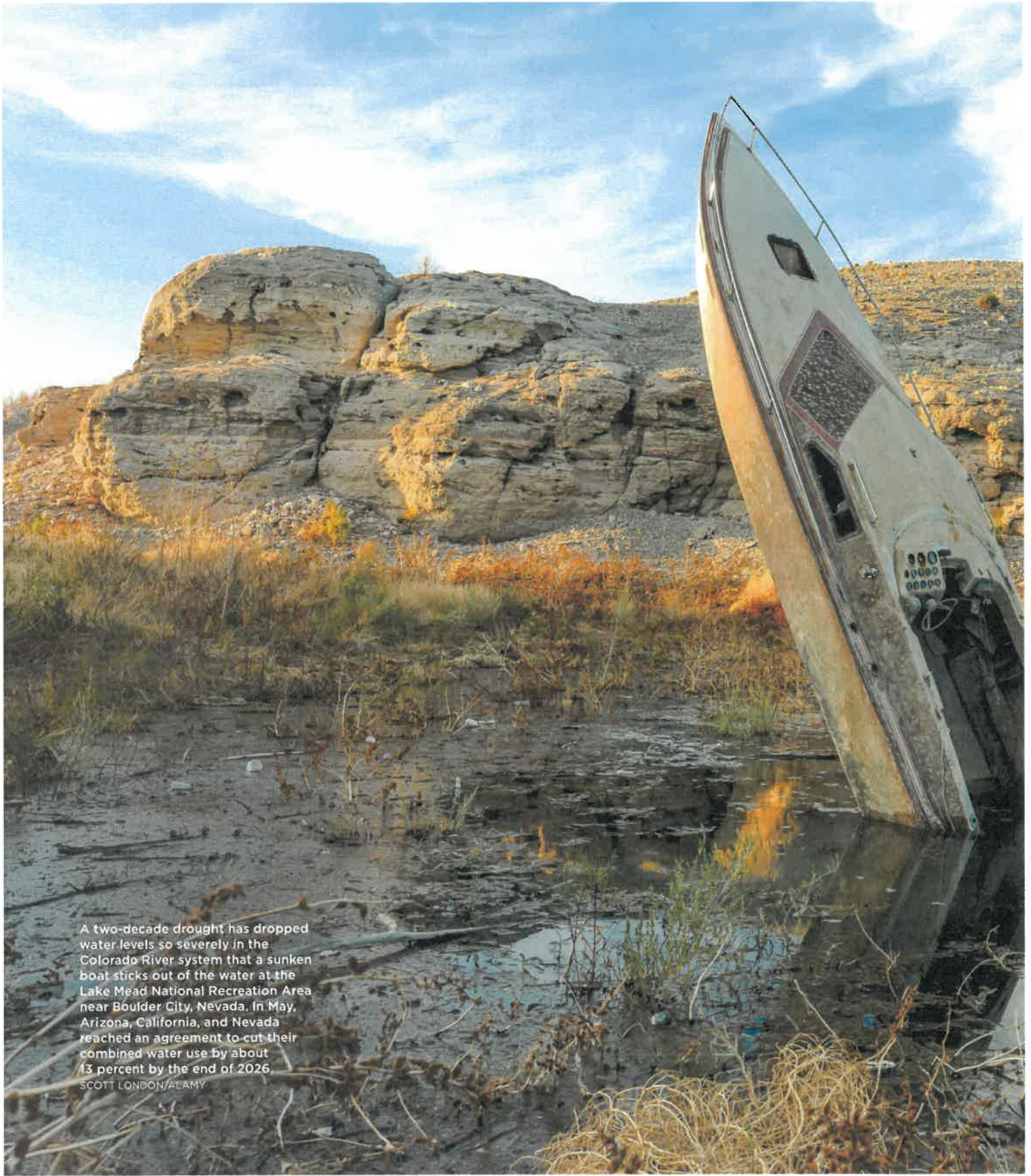
1. Srelay@city23092113050

Land-Use
Policy Could
Help Solve
the American
West's
**WATER
CRISIS**

As the twin pressures of water shortages and massive growth run the Colorado River dry, planners explore innovative solutions.

By PATRICK SISSON

THE COLORADO RIVER HAS GONE BY MANY NAMES, with sobriquets as colorful as its muddy red hue. Navajo call it Nts'ósíkooh, meaning "Slim Water Canyon." Spanish explorers told of the Rio del Tizon, which translates to "River of Embers" or "Firebrand River." Some 19th-century Americans dubbed it the Grand River. Today, the Colorado is best known as a waterway



A two-decade drought has dropped water levels so severely in the Colorado River system that a sunken boat sticks out of the water at the Lake Mead National Recreation Area near Boulder City, Nevada. In May, Arizona, California, and Nevada reached an agreement to cut their combined water use by about 13 percent by the end of 2026.

SCOTT LONDON/ALAMY

under threat. In 2021, the Department of the Interior declared a shortage on the river, dried up by drought, overuse, and the persistent ravages of climate change.

“We need to understand that the water budget of the West is changing beneath our feet rapidly,” Park Williams, a climate scientist at UCLA, told the *Los Angeles Times* in 2022. “We need to be prepared for a much drier future, and to not rely so much on hope that when it gets wet again, we can just go back to business-as-usual water management.”

The river’s average annual flow of 14.6 million acre-feet of

and infrastructure planning at CDM Smith, and chair of APA’s Water Task Force. “Have planners always been trained in water management issues? Not really. That’s a skill set that has evolved over the past 20 years.”

As the twin pressures of growth and shortages continue across the American West, planning innovations are creating new models for water management, resource-first development, and collaboration free of silos.

‘Have planners always been trained in water management issues? Not really. That’s a skill set that has evolved over the past 20 years.’—Bill Cesanek, AICP, CDM Smith

water (a single acre-foot is the equivalent of a football field-sized pool filled to a depth of one foot) seems significant until you consider how it’s divvied up. Roughly 70 percent irrigates crops, especially alfalfa and animal feedstock, while the rest is split between tribal nations, some of the fastest-growing cities and states in the U.S., and two of Mexico’s northern states. That is water (and electricity) for about 40 million people.

Today’s increasingly dire supply-and-demand crisis, exacerbated by the worst megadrought in a millennia, spawns explosive wildfires, stressed bird populations, dried-out reservoirs, and flows so low that the river nearly hit deadpool (the level at which reservoirs become so parched that the Colorado effectively stops). Residents of the region already see big disruptions to daily life: the Rio Verde Foothills, a community of around 2,000 homes north of Scottsdale, Arizona, faced water shutoffs in February.

Intervention is needed, and fast. With population growth projections what they are—more than a million new residents are expected in Arizona alone by 2030—federal officials have already hinted that allotment of the Colorado, set through a 1922 compact known as the Law of the River, may change drastically, pushing states and cities to make massive leaps in water conservation and efficiencies.

“Planners, because they’re involved in making decisions about the built environment, are in a key place right now,” says Bill Cesanek, AICP, a planner and vice president for urban

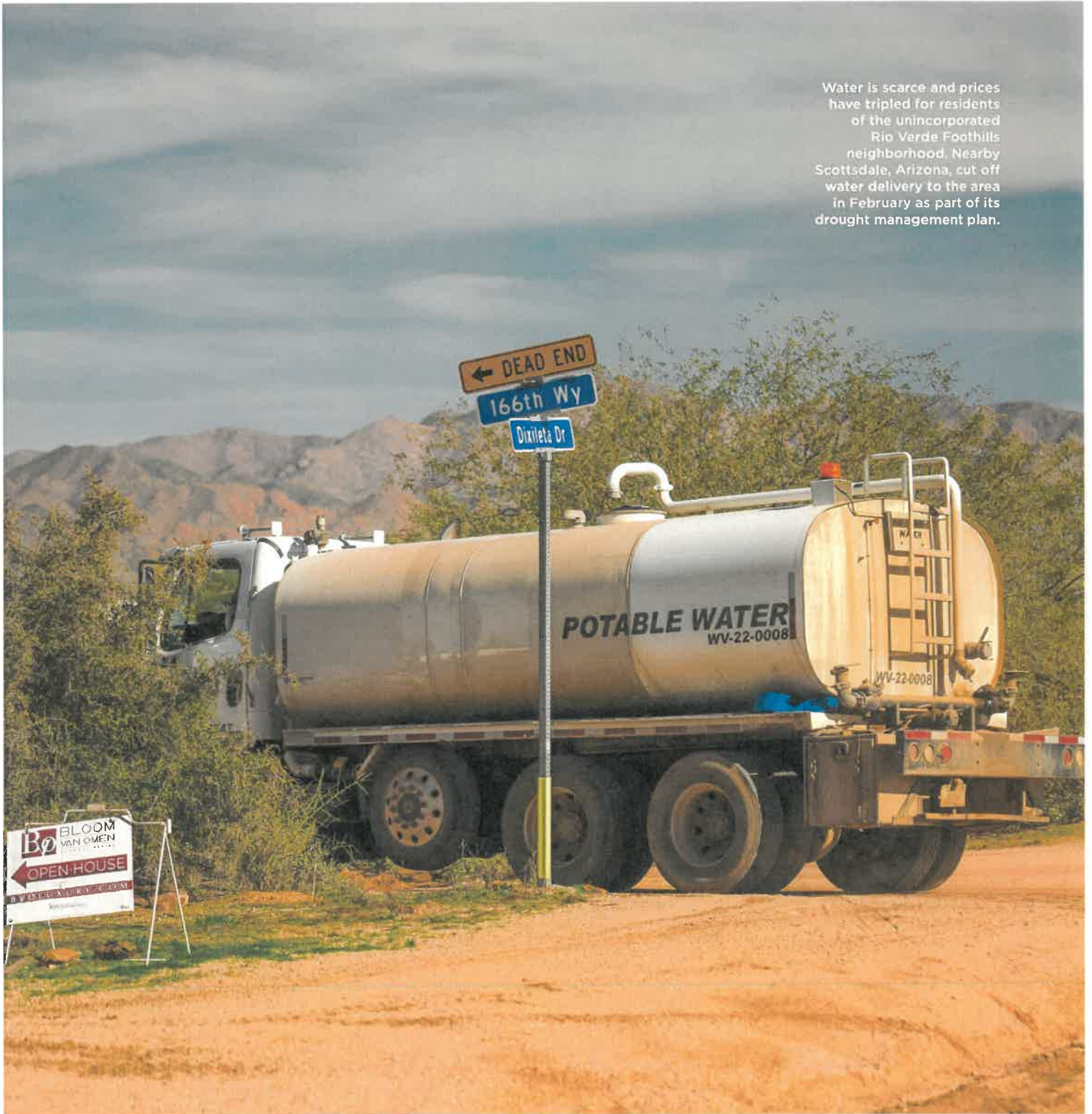
Water policy defined by drought

In the lower Colorado River basin—California, Arizona, and Nevada—drought is a fact of life reinforced with each subsequent year. In May, the U.S. Department of the Interior announced a deal among the three states, where each would agree to cut river water use by 13 percent in exchange for \$1.2 billion in federal funding for farmers and tribes, as well as for conservation programs. And in June, Arizona restricted building permits in the Phoenix metro area because of low groundwater supplies.

The reality of severe drought has reshaped water policy, says Ellen Hanak, vice president and director of the Water Policy Center at the Public Policy Institute of California. California’s severe shortages in the 1970s introduced refined demand management and drought contingency plans, while the drought from 1986 to 1992 pushed utilities to get more serious about reinforcing water supply and investing in resilience.

Notably, pioneering water regulations at the federal level, like 1977’s Clean Water Act, weren’t in place for much of the nation’s pre-war and mid-century building boom. That means smart water management didn’t factor into

Water is scarce and prices have tripled for residents of the unincorporated Rio Verde Foothills neighborhood. Nearby Scottsdale, Arizona, cut off water delivery to the area in February as part of its drought management plan.



rapid suburban expansion. But the assumption that water would just be available for housing in exurban areas via groundwater and wells has been radically rethought, with many state laws requiring new projects to prove they have a viable water supply before breaking ground. Local water utilities have interconnected to work together during times of drought, and activities that would taint important groundwater sources have been curtailed.

Threaded with this abbreviated history of water management and policy is the siloed approach different agencies and leaders took—and the impediment that created for conservation. Engineers largely saw water as an issue, particularly in terms of flooding, and designed roads, commercial districts, and infrastructure to whisk it away quickly. Now, sustainability leaders see the value in recovering stormwater and designing green space and residential sites to capture and collect.

Despite tremendous growth across the Colorado River basin, the region has largely seen water usage level off thanks to efficiencies. Quick fixes like swapping out old appliances, upgrading plumbing codes, and increasing systemwide water efficiency have mostly been deployed in more populous states, says Amanda Begley, associate project manager at Tree People, a Los Angeles-based environmental advocacy group. In large swaths of the Southwest, all the water that enters the municipal wastewater system is already reclaimed and reused.

Still, water policy defined by decades of drought is proving insufficient. More sophisticated solutions—and profound changes—are needed.

Development considerations

In many ways, water challenges bolster land use already championed by urban planners, especially around density—building more multistory housing requires fewer resources and leaves more waterways and wetlands undisturbed, a valuable piece of water management and quality.

Planners can take best practices around water policy and meld them with land-use goals to retrofit older buildings and neighborhoods and make choices that support smart growth.

A GUIDE TO UPDATING LOCAL REGULA

Building and zoning codes are a powerful way to advance local

Regulations are a foundational part of a planner's toolkit. They heavily influence the way our communities look and function by directing where and how we build.

As sea level rise, stormwater flooding, and other climate impacts become more severe, they also have a vital role to play in adaptation and mitigation. Regulations can not only help eliminate barriers to implementing climate-resilient strategies, but they can also promote inclusion of climate resilience strategies into new projects and retrofits.

In fact, your local code offers multiple opportunities for promoting climate action. Here are three ways to incorporate climate goals into your local regulations.

1. AUDIT YOUR REGULATIONS FOR OPPORTUNITIES TO UPDATE

The first step: decide what your community's goals are for climate adaptation. Do you want to encourage green infrastructure to better manage stormwater? Limit new development in the floodplain? Reduce urban heat island impacts?

Then, conduct a comprehensive audit and consider any edits or additions that would support your goals, introducing new prescriptive language.

Marlborough, Massachusetts, is updating its regulations to include climate resilience; the new recommended language for the city's stormwater regulations, seen below in bold, introduces a prescriptive requirement related to best practices and the use of climate data to inform design:

Ensure adequate long-term operation and maintenance of structural stormwater best management practices **through a required Operations and Maintenance Plan** so that stormwater structures work as designed. **Designs shall consider long-term climate change projections to accommodate increased volume of runoff.**

A few important things to consider are to be careful of adding language that conflicts with other sections of the code, use track changes or a table to capture edits, and consider forming a committee to champion the process. Once the draft update is complete, share your recommended changes with all relevant stakeholders or committees for feedback.

2. START WITH FLEXIBLE DESIGN GUIDANCE—AND INCENTIVES

Your community may be concerned with the enforceability of climate adaptation strategies. In those cases, instead of introducing prescriptive standards, communities can take a gentler approach by expanding site plan review submission requirements.

IONS FOR CLIMATE RESILIENCE

imate goals. Try these tactics for proven results. BY BELLA PURDY, AICP

Create a climate adaptation design guidance document or checklist to help project proponents incorporate your strategies into their projects.

By offering design guidance, a community can encourage climate adaptation without requiring or creating conflict with the state building or energy codes. Consider incentives for incorporating strategies on the checklist; for example, for large developments, a community could increase floor area ratio or allow an additional unit if a certain number of strategies on the climate resilient checklist are included in the project.

A CLIMATE SUSTAINABILITY CHECKLIST

Chelmsford, Massachusetts, uses flexible requirements to increase resilience, with a specific number of strategies required in each category. For building strategies, developers must pick four from the checklist to incorporate into their designs.

BUILDING SYSTEM	
Please indicate any low-carbon emissions energy strategies or renewable energy strategies that are utilized in the project's site or building design.	
	Sustainable Roof Systems. Check all that apply. ☐ Cool Roof (Roof with high solar reflectance, often white or light-colored material) ☐ Intensive Green Roof ☐ Extensive Green Roof
	Building will have green façade.
	Building will have solar panels.
	Building is PV ready but will not have solar panels at time of initial occupancy.
	Passive cooling is supported through flow-through ventilation design, low E windows, solar shades.
	Passive heating is supported via building orientation, window design and thermal mass.
	Heating uses a low carbon heating or cooling source, such as air source heat pump.

SOURCE: CHELMSFORD, MASSACHUSETTS CLIMATE SUSTAINABILITY CHECKLIST



A new "cool factor" ordinance in Cambridge, Massachusetts, could lead to more green roofs like this one at a mixed-use residential building.

Consider this example (left) from Chelmsford, Massachusetts, a community that created a "Climate Sustainability Checklist." They encouraged—without requiring—a certain number of strategies based on the size of the project. The town referred to these designations as "tiers."

3. IMPLEMENT A PERFORMANCE-BASED ZONING ORDINANCE
Performance-based zoning requires a certain performance metric for a project while allowing for flexibility in achieving it. That allows for localized innovation and changes rather than rigid, prescriptive requirements.

Cambridge, Massachusetts, is in the process of adopting a "cool factor" zoning ordinance, which requires new projects to incorporate strategies that reduce the urban heat island effect. The cool factor calculates a weighted score based on site features like mature tree preservation, new tree planting, ground-level vegetation coverage, green roofs, shade structures, and the use of high solar-reflectivity paving materials. Aside from one prerequisite—the use of high-solar-reflectivity roof coverings—property owners are given the flexibility to choose which strategies are most appropriate.

Developing a scoring system can be complicated. Base your metrics on the best available climate vulnerability data and use existing resources where available.

Bella Purdy, AICP, is a climate resiliency specialist and planner with Weston & Sampson and is based in Virginia. She can be reached at purdy.bella@wseinc.com. Read the full version of this article at planning.org/planning.

COURTESY RECOVER GREEN ROOFS LLC



Orange County, California, relies on extensive water recycling programs, like at this reverse osmosis plant, where wastewater is filtered through membranes before eventually being used to recharge underground aquifers.

Current anxieties over new development in Arizona—such as Buckeye, a Phoenix suburb with 27 master-planned developments in the queue—points to the power planning has to limit unsustainable development. Real estate projects need to verify 100-year water supplies before getting permitted and often rely on overallocated and limited aquifers.

“Planners need to be mindful that any new construction and any new concrete and hardscape is adding to [urban runoff] and stopping the water from being able to soak in the ground, feed our vegetation, and fill out aquifers,” says Tree

Commercial land uses also require extensive consideration. The Phoenix area, where Taiwan Semiconductor Manufacturing Company plans to invest \$40 billion in a new semiconductor plant, offers numerous examples of planning for high-volume water users. According to Sarah Porter, director of the Kyl Center for Water Policy at Arizona State University, highly consumptive plants like these can reclaim roughly 85 percent of the water used. Figuring out the

Planners can take best practices around water policy and meld them with land-use goals to retrofit older neighborhoods and support smart growth.

People’s Begley. “Because it’s somewhat invisible, people aren’t thinking about it until we have a major rain event.”

Encouraging better development practices overcomes natural reluctance on the part of developers. Despite water allocations set by state rules and utilities, planners often interface with developers and issue final approval, giving them room to require landscaping, conservation efforts, and building strategies that can make projects more sustainable. In New Mexico, an in-process megadevelopment called Santolina may resubmit its plans to add water reclamation technology and a vast solar installation to allay consumption concerns its estimated 90,000 residents would bring.

Up north in Westminster, Colorado, planners have even decoupled water use from growth to create a preemptive planning process wherein water data informs land use. Instead of using a simple per-capita water usage metric, the city built custom maps that can help inform the best places for multifamily developments or what the impact of a strip mall might be. Planners can look ahead and demand more infrastructure and conservation features from development proposals—or even scrap them altogether if they would use too many resources.

“We didn’t want public works to determine how the city developed,” Stu Feinglas, Westminster’s recently retired senior water-resources analyst, told CityLab. “What we could do is show how much water we have and ask them to be creative and make their development work with that.”

impact of these projects—and how to blunt that with water reclamation—are key to planning and permitting. Cities like Mesa and Chandler in Arizona have already instituted ordinances that help balance out water usage from new commercial tenants.

Landscaping and conservation

Pushing for new regulations around landscaping, water recycling, and stormwater runoff is a key target for water policy, Begley says. A continued trend toward native plantings, drought-tolerant landscapes, large-scale water reclamation and stormwater projects at parks and green spaces, and even bans on nonfunctional turf (the other NFT) will ensure precious drops aren’t wasted.

Notably, one of the region’s greatest successes comes from an area of excess: Las Vegas, where local planners and the Southern Nevada Water Authority instituted strict programs, rules, and incentives to rip up grass, limit water usage, and ration watering. Today, water use per capita is down 48 percent from 20 years ago.

But across the West, an outgrowth of policy shifts has protective planners and agencies pushing new ideas to cut back on waste and radically

increase efficiency. In Los Angeles, the low-impact development ordinance, passed in 2021, mandates stormwater mitigation strategies for new construction. Nearby Orange County, California, particularly vulnerable to droughts and seawater contamination, has pioneered extensive water recycling programs that lessen its reliance on outside resources. And Native American tribes in the region, which have traditionally been dispossessed of their water rights despite

and bringing wildlife back to its formerly barren banks.

Resident buy-in and input has been key to implementing many of these changes, making community outreach all the more vital. In roughly 102 communities around Los Angeles, Tree People's WaterTalks program conducted needs assessments around water issues. Understanding those needs ahead of time flips the typical development process on its head. Smart planners can budget in stormwater projects and water reclamation for, say, a soccer field city residents want. The alternative—residents feeling like their requests must over-

Increasingly, planners can't create the kind of city
that attracts and supports residents
without planning for water at the center of it.

federal rulings granting them 22 percent of the Colorado, plan to dedicate new federal dollars from the Infrastructure Investment and Jobs Act to conservation and sustainability (the act gives \$4 billion for water management to communities across the basin). The Gila River Indian Community in Arizona, for example, aims to build solar panel shade covers for canals and invest tens of millions of dollars in infrastructure for reclaimed water.

While facing calamitous drought, Tucson, Arizona, developed an award-winning reclaimed water program. In 2021, the customer base of the local utility used the same amount of water as it did in 1990, even with about 200,000 more residents. The strategy—which includes planting one million drought-tolerant trees by 2030, embracing stormwater, and incentivizing homeowners and neighborhood groups to incorporate green infrastructure—has empowered residents. Neighborhood-scale rainwater-harvesting grants and a rebate program that has conserved nearly 200 million gallons of water in a decade show the potential of encouraging better design. The city has even released reclaimed water into the Santa Cruz River, recreating a year-round riverfront

come bureaucracy that impedes new developments and amenities—hurts engagement and efficiency.

"There's been a sense that the public can't possibly understand things," Begley says. "And that's been a major blind spot." As community groups become more informed about water issues, she adds, outreach becomes more successful. In Phoenix, that allows for tackling the complex interplay between water management and other issues impacted by climate change, like extreme heat.

"Our existential threat in the Phoenix area isn't water supply; it's heat," Porter says. "We are kind of the test bed for what happens with the urban heat island, and hopefully urban heat island mitigation. And how do you mitigate heat? Plants are a huge solution, and especially trees, and they need water."

Porter's point is that while water is necessary for growth, that growth can be shaped and directed toward sustainability. Increasingly, planners can't create the kind of city that attracts and supports residents without planning for water at the center of it.

"Do you want to have a Phoenix where you don't have parks and shady trees and walkable corridors?" Porter asks. "That's the kind of water discussion I think planners should be involved in because planners inform so much of that."

Patrick Sisson is a Los Angeles-based writer and reporter focused on the tech, trends, and policies that shape cities.



CITY OF FERNLEY

Planning Commission AGENDA REPORT

Meeting Date: October 11, 2023

REPORT TO: Fernley Planning Commission

REPORT FROM: Michele Rambo, Planning Director

FINANCIAL IMPACT:

Yes: No: X

CURRENTLY BUDGETED:

Yes: No: X

FUND/ACCOUNT:

N/A

ACTION REQUESTED: Motion

AGENDA ITEM:

(For Possible Action) Consideration and possible action to recommend that the City Council adopt Bill #335, an Ordinance to repeal and replace Section 32.06.140 (Planned Development) of the City of Fernley Development Code.

AGENDA ITEM BRIEF:

The Planned Development section of City Code was last amended in 2020. Since that amendment, the interest in Planned Developments throughout the City of Fernley has grown. The current Planned Development section is aimed at residential developments and does not include information on application requirements or an approval process. The proposed amendment has been written to not only include the missing processing information, but also to make it more applicable to non-residential development.

RECOMMENDED MOTION:

I move to recommend that the City Council approve Bill #335 amending Section 32.06.140 (Planned Development) of the City of Fernley Development Code as presented based on the findings outlined in the staff report.

BUSINESS IMPACT (per NRS Chapter 237):

A Business Impact Statement is not required because this is not a rule (term excludes vehicles by which legislative powers are exercised under NRS Chapters 271, 278, 278A, or 278B).

See attached report for background, analysis, alternatives.

ALTERNATIVES:

BACKGROUND:

Section 32.06.140 of the Fernley Development Code was last amended in 2020. At that time, it was written to focus on residential developments, but did not adequately consider potential commercial or industrial developments. With the growing interest in large industrial developments in Fernley, and the developers desire to create Planned Developments, it has become clear that the current Planned Development is not one-size-fits-all.

In addition, the current Planned Development code does not include any provisions for application submittal requirements or processing. Without these guidelines, Staff is left without a clear path which can lead to inconsistencies and confusion.

The Planning Commission previously considered this item at the August 9, 2023 meeting, where they forwarded the amendment to the City Council with a recommendation of approval. First reading of Bill #335 was scheduled to take place by the City Council on September 6, 2023. However, prior to that meeting, it was determined that additional changes were needed to the section discussing open space. The City Attorney determined that the changes were substantial enough to require another review from Planning Commission.

ANALYSIS:

Commercial and Industrial developments have unique needs that should be addressed in the Planned Development code. Instead of golf courses and parks, they need truck courts and delivery areas. The amount of open space and landscaping typically looked for in a residential neighborhood is far above what is typical for shopping areas and industrial parks, where the focus is more on parking and truck movement. Sections of the proposed amendment have been clarified to indicate if they are specific to residential or nonresidential developments.

The proposed modifications to Section 32.06.140 (Planned Development) also include sections outlining application requirements, the approval process, and a modification process. These sections are comparable to other Planned Development codes throughout the State of Nevada and conform with the Planned Development chapter of the NRS.

Another change to be noted is the increase in the minimum site area required for a Planned Development from five (5) acres to forty (40) acres. This is a benefit to the developers, especially with the open space requirement of twenty (20) percent. A five (5) acre development is going to require that one (1) of those acres consist of open space. A forty (40) acre development is going to require eight (8) acres of open space. When looking at the financial feasibility of development, the more acres available to build means a better financial return.

In conclusion, the proposed Code Amendment will make the requirements and process to approve a Planned Development much clearer to both City staff and developers.

FINDINGS:

To approve the Code Amendment, the following findings must be met:

CA1

The text amendment is consistent with the City's Master Plan and otherwise consistent with state and federal law.

The proposed text amendment does not change any existing zoning or land use designations or create any conflicts with the City's Master Plan. The addition of processing requirements and consideration for commercial

and industrial projects is consistent with the Master Plan. Nevada Revised Statutes Chapter 278A (Planned Development) acted as a guide for the proposed changes, so the amendment is consistent with State laws.

CA2

Public notice was given and a public hearing held per the requirements of the Development Code and Nevada Revised Statutes.

Public notice was given per Development Code and NRS requirements. Additional public hearings will be conducted as the amendment continues through the process.

RELEVANT LAWS, STATUTES, AND REGULATIONS:

Development Code Section 32.06.140 (Planned Development)
NRS 278A (Planned Development)

FINANCIAL IMPLICATIONS:

None

ATTACHMENTS:

1. Bill 335
2. PD Code Final Draft

BILL #335
CITY OF FERNLEY
ORDINANCE # _____

AN ORDINANCE AMENDING TITLE 32, CHAPTER 06 OF THE FERNLEY MUNICIPAL CODE REPEALING AND REPLACING SECTION 140 (PLANNED DEVELOPMENT) AND OTHER MATTERS RELATED THERETO.

THE CITY COUNCIL OF THE CITY OF FERNLEY, hereinafter “the Council”, DO HEREBY ORDAIN:

Section 1. Chapter 32.06.140 is hereby repealed as follows:

Purpose: This chapter provides for maximum environmental choice for the citizens of the City of Fernley by encouraging flexibility and creativity of design and a greater diversity of building types, open space arrangements and other aspects of land planning while, at the same time, preserving public welfare, health, and the general intent of the City of Fernley Master Plan. An additional purpose of this chapter is to provide a degree of certainty for the duration of build out of a large tract of land, such certainty not otherwise available in other chapters of this title.

~~(a) Minimum site.~~

~~(1) The minimum site area is five acres.~~

~~(2) The city council may waive this minimum if the proposal furthers the city's adopted redevelopment plan.~~

~~(b) Requirements for all planned development reviews.~~

~~(1) Permitted uses.~~ A planned unit development may include any uses permitted in any zone classification provided that any combination of uses is planned in a manner compatible to each and to the surrounding environment and shall be consistent with the city's master plan.

~~(2) Density.~~ The allowable density for a planned unit development shall be within the range established in the City of Fernley Master Plan. Factors to be considered in assigning density are:

- ~~a. Site analysis;~~
- ~~b. Topography;~~
- ~~c. Drainage ways;~~
- ~~d. Views;~~
- ~~e. Soils;~~
- ~~f. Layout of lots;~~
- ~~g. Site sectional studies.~~

~~(3) Common open space.~~

~~a. Subject to the limitations of this section, all developments must provide for a minimum of 20 percent common open space.~~

~~b. Irrespective of its size, no golf course may contribute more than one-quarter of the common open space required by this section.~~

~~c. The common open space required by this section may be reduced by one quarter if it can be demonstrated to the satisfaction of the administrator that the common open space is:~~

- ~~1. Landscaped, in a manner which exceeds the minimum standards imposed in [chapter 32.09](#);~~
- ~~2. Is interconnected with a trail system;~~

3. ~~Accessible from other portions of the development, with said accessibility provided for in the development plan;~~
4. ~~For nonresidential development the common open space requirement can be met by providing a minimum of 20 percent of the development as landscaped area, which exceeds the minimum standards imposed in [chapter 32.09](#).~~

~~(4) Buffer zones.~~

- a. ~~The applicant must demonstrate, to the satisfaction of the administrator, the proposed buffer zones between dissimilar uses within the development is sufficient.~~
- b. ~~Special design considerations such as height controls, density controls, architectural modifications, and landscaping buffers shall be incorporated in any portion of the development which adjoins a previously approved entitlement.~~

~~(5) Landscaping on private property.~~ Because a planned development may allow for increases in density, additional landscaping requirements may be imposed by the administrator. The developer must provide an incentive plan for front yard landscaping and automated irrigation for single-family homes which will be approved as a part of the architectural manual.

~~(6) [Existing projects.]~~ Existing projects may be considered for planned development if, in the opinion of the administrator, they do not pose any health, safety or welfare problems.

~~(7) Dedication.~~ Any land or interest therein within a planned unit development may be dedicated to the city for public use and maintenance, although the city is under no obligation to accept such dedication. In no event does land dedicated to and accepted by the city constitute common open space for the purposes of this chapter.

~~{ Ord. No. 2020-005, § 1(Exh. A), 3-4-2020 }~~

Section 2. Chapter 32.06.140 is hereby added as follows:

Purpose: The purpose of the Planned Development (PD) District is to permit and encourage comprehensively planned developments by providing flexibility in the distribution of land uses, in the density of development, and in other matters typically regulated in traditional zoning districts.

(a) Definitions

- (1) “Master development plan” means a plan, as that term is defined in NRS 278A.060, and accompanying maps which identify the proposed location and size of development parcels, land uses, and zoning designations; transportation plans and a traffic impact analysis; open space, community facilities, and amenity plans; and the applicable development regulations and design standards.
- (2) “Development standards” means the minimum standards for development in the Planned Development District, including but not limited to standards for intensity and type of use; densities; building design, layout, configuration, height, coverage, spacing, bulk, and setback requirements; provisions for utilities; topography and drainage patterns; signage; open space and landscaping; on-site vehicular and pedestrian circulation and parking; urban design elements and features; and site amenities.

(b) Rezoning and Minimum Site Area.

- (1) Property may be rezoned to the Planned Development District by the City Council in accordance with the requirements of this Section and Section 32.03.030. Each rezoning parcel shall be described as a separate district, with distinct boundaries and specific design and development standards. The rezoning shall include the adoption of a specific master development plan and development standards.
- (2) The minimum site area is forty (40) acres. The City Council may waive this minimum if the proposal furthers the goals of the City's Comprehensive Master Plan.

(c) Application Requirements.

- (1) Concept Plan Review. In the case of property that is sought to be reclassified to the Planned Development District, the applicant must submit conceptual plans and meet with the administrator, or the administrator's designee, before the City has any obligation to accept the rezoning application as complete. At the meeting, the administrator or the administrator's designee shall:
 - a. Ask questions of the applicant to clarify their understanding of the applicant's intent;
 - b. Ensure the applicant understands all required steps in the development review process; and
 - c. State any concerns identified by staff based on preliminary review of project plans and materials.
- (2) In addition to the submittals required by Section 32.03.030, the following must accompany an application for rezoning submitted by a property owner:
 - a. A statement by the applicant describing how the proposed development departs from the otherwise applicable standards of this Code and how the proposed development is an improvement over what would otherwise be required by applicable development regulations.
 - b. A metes and bounds description of the proposed Planned Development District.
 - c. A proposed master development plan for the entire site.
 - d. Development standards that are proposed to be applied to the development. The development standards must include provisions regarding the installation of utility boxes and above ground utilities that are at least as restrictive as those set forth in this Title for comparable development.
 - e. Any proposed conditions, covenants, and restrictions for the development including easements and grants for public utilities.

- f. The location of primary and secondary thoroughfares proposed for the development, including right-of-way widths and the location of access points to abutting streets.
 - g. Identification of all rights-of-way, easements, open spaces or other areas to be dedicated, deeded or otherwise transferred to the City.
 - h. A plan for the extension of any necessary public services and facilities, including sewer facilities and facilities for flood control and drainage.
 - i. Guidelines for the physical development of the property, including illustrations of proposed architectural, urban design, landscape, open space, and signage concepts.
 - j. The location and description of all buffering that is proposed between the development site and adjacent properties.
 - k. Additional information and details may be required in order to respond to the unique characteristics of the site and its location.
 - l. In the case of plans which call for development over a period of years, a schedule showing the proposed times within which applications for additional approval of all sections of the PD District are intended to be filed.
- (3) If the land uses proposed by the project differ significantly from the land uses allowed by the existing Master Plan designation for the area, an application for rezoning to the PD District must be accompanied by and processed concurrently with an application for a comprehensive master plan amendment to ensure that the land uses proposed by the project are consistent with the Comprehensive Master Plan.

(d) Permitted Uses and Standards

- (1) Any combination of residential, commercial, industrial, or public uses may be permitted within a specific Planned Development District to the extent they are consistent with the Master Development Plan for that District. The uses to be permitted within the District must be specified in the adopted Master Development Plan for the District. Because of the nature and purpose of the PD District, and notwithstanding any other provision of this Section:
- a. An application to rezone property to the PD District may be denied by the City Council, at its complete discretion, if it finds that the proposed development is incompatible or out of harmony with surrounding uses or the pattern of development within the area.
 - b. No use, type of development or development standard is presumptively permitted within the PD District unless it already has been included in the adopted plan for the District.

- c. An application to allow within the PD District a particular use, type of development or development standard which has not already been included in the adopted plan for the District may be denied if it is incompatible or out of harmony with the surrounding uses or the pattern of development within the area.
- (2) Density. For PD Districts with residential development, the master development plan shall establish the maximum number of dwelling units per gross acre for each residential category (e.g., single family, multi-family, etc.) as well as for the entire development. Factors to be considered in assigning density are:
 - a. Site analysis;
 - b. Topography;
 - c. Drainage ways;
 - d. Views;
 - e. Soils;
 - f. Layout of lots;
 - g. Site sectional studies.
- (3) Open space.
 - a. Subject to the limitations of this section, all developments that include residential uses must provide for, within the Planned Development district boundary, a minimum of 20 percent of the gross area of the site as common usable open space.
 - b. Irrespective of its size, no golf course may contribute more than one-quarter of the common open space required by this section.
 - c. The common open space required by this section may be reduced by one quarter if it can be demonstrated to the satisfaction of the administrator that the common open space is:
 - 1. Landscaped, in a manner which exceeds the minimum standards imposed in [chapter 32.09](#);
 - 2. Is interconnected with a trail system;
 - 3. Accessible from other portions of the development, with said accessibility provided for in the development plan;

4. For nonresidential development the common open space requirement can be met by providing a minimum of 20 percent of the development as landscaped area, which exceeds the minimum standards imposed in [chapter 32.09](#).
 - d. Developments that do not include residential uses must provide for, within the Planned Development district boundary, a minimum of 10 percent of the gross site area as open space, which can be met by providing a combination of landscaping, trails, sidewalks, and bicycle lanes.
 - e. Land dedicated to and accepted by the City shall not constitute common open space for the purposes of this chapter except as otherwise provided in an approved development agreement.
- (4) Buffer zones.
- a. The applicant must demonstrate, to the satisfaction of the administrator, the proposed buffer zones between dissimilar uses within the development is sufficient.
 - b. Special design considerations such as height controls, density controls, architectural modifications, and landscaping buffers shall be incorporated in any portion of the development which adjoins a previously approved entitlement.
- (5) Landscaping on private property. Because a planned development may allow for increases in density, additional landscaping requirements may be imposed by the administrator for Planned Developments with residential development. The developer must provide an incentive plan for front yard landscaping and automated irrigation for single-family homes which will be approved as a part of the development standards.
- (6) Existing projects. Existing projects may be considered for planned development if, in the opinion of the administrator, they do not pose any health, safety or welfare problems.
- (7) Dedication. Any land or interest therein within a planned unit development may be dedicated to the city for public use and maintenance, although the city is under no obligation to accept such dedication.
- (8) Maintenance of common open space.
- a. Common open space areas, which may include walkways with public access easements, shall be maintained as permanent open space through at least one of the following options: common ownership by a property owner's association, held in deed-restricted private ownership, or dedication to the City or to another appropriate public agency.
 - b. All methods utilizing private ownership shall be in a form approved by the City Attorney, who shall review the documents to ensure perpetual maintenance, preservation, and restricted usage where applicable.

(e) Approval of Master Development Plan and Development Standards.

- (1) The Planning Commission shall hold a public hearing on the proposed PD zone change and, within 60 days of the public hearing, make a recommendation to the City Council.
- (2) After receiving the recommendation of the Planning Commission, the City Council shall act to approve, approve with conditions, or deny the proposed PD zone change.
- (3) In connection with the approval of a Planned Development District, the City Council shall adopt a Master Development Plan and Development Standards, which will thereafter govern the development of property within the District. The approved Master Development Plan and Development Standards for a Planned Development District shall be recorded with the applicable rezoning ordinance and a statement listing all conditions of approval.
- (4) In considering the approval of a Master Development Plan and Development Standards for a Planned Development District, the Planning Commission and City Council shall be guided by the following objectives, and may impose such conditions and requirements deemed necessary to meet those objectives:
 - a. Consistency of the proposed development with the City's Comprehensive Master Plan and other applicable plans, policies, standards, and regulations.
 - b. Compatibility of the proposed development with adjacent and surrounding development.
 - c. Minimization of the development's impact upon adjacent roadways and neighborhood traffic, and upon other public facilities and infrastructure.
 - d. Protection of the public health, safety, and general welfare.

(f) Modification of Master Development Plan and Development Standards.

- (1) The development of property within the Planned Development District may proceed only in strict accordance with the approved Master Development Plan and Development Standards. Any request by or on behalf of the property owner, or any proposal by the City, to modify the approved Master Development Plan or Development Standards shall be filed with the administrator. A Minor Modification is a modification which is requested or agreed to by the property owner and which is intended to accomplish one or more of the following:
 - a. A change in the location of a use from the location specified in the approved Master Development Plan, but only if the change in location will not have a significant impact on other uses in the area.
 - b. The addition of uses that are comparable in intensity to those permitted in connection with the rezoning approval or the approval of a Master Development Plan for the District.

- c. A change in parking lot layout, building location or other similar change that conforms with the intent of the previously approved Master Development Plan and Development Standards.
- d. A change in the species of plant material proposed for the District.
- e. A decrease in the density or intensity of development from that previously approved for the District.
- f. Any other change or modification of a similar nature which the administrator determines will not have a significant impact on the District or its surroundings. A Minor Modification shall be reviewed and acted upon administratively by the administrator. An applicant who is aggrieved by the administrator's decision may appeal that decision to the Planning Commission by filing a written appeal with the administrator no later than 10 days after the date the applicant receives notice of the administrative decision.

(2) Major Modification. A Major Modification includes any modification which does not qualify as a Minor Modification. A Major Modification shall be processed in accordance with the procedures and standards applicable to a rezoning application.

(g) Administrative Review.

All development within a PD District is subject to the administrative review procedures set forth in Section 32.03.050 except as otherwise provided in a development agreement.

(h) Issue Resolution – Analogous Standards

With regard to any issue of land use regulation that may arise in connection with a Planned Development District and that is not addressed or provided for specifically in this Section or in the approved Master Development Plan and Development Standards for that District, the administrator may apply by analogy the general definitions, principles, standards, and procedures set forth in this Title, taking into consideration the intent of the approved Master Development Plan and Development Standards.

Section 3. All ordinances or parts of ordinances in conflict herewith are hereby repealed.

Section 4. The City Clerk is instructed and authorized to publish the title of this ordinance as provided by law.

Section 5. This ordinance shall become effective upon passage, approval, and publication.

Section 6. The provisions of this ordinance shall be liberally construed to effectively carry out its purposes in the interest of the public health, safety, welfare, and convenience.

Section 7. In any subsection, phrase, sentence, or portion of this ordinance is for any reason held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate, distinct, and independent provision, and such holding shall not affect the validity of the remaining portions.

Section 8. The City Council finds that this ordinance is not likely to impose a direct and significant economic burden upon a business or directly restrict the formation, operation, or expansion of a business, or is otherwise exempt from Nevada Revised Statutes Chapter 237.

BILL #335 BEING HEREBY PROPOSED on the ____ day of _____, 2023.

BILL #335 BEING HEREBY PASSED, APPROVED, and ADOPTED this ____ day of _____, 2023, by the following vote of the Council:

Ayes: _____ Nays: _____ Abstentions: _____ Absent: _____

FERNLEY CITY COUNCIL

By: _____
Neal E. McIntyre, Mayor

Date: _____

Attest By: _____
Kim Swanson, City Clerk

Date: _____

Sec. 32.06.140. - Planned development.

~~Purpose: The purpose of the Planned Development (PD) District is to permit and encourage comprehensively planned developments by providing flexibility in the distribution of land uses, in the density of development, and in other matters typically regulated in traditional zoning districts. This chapter provides for maximum environmental choice for the citizens of the City of Fernley by encouraging flexibility and creativity of design and a greater diversity of building types, open space arrangements and other aspects of land planning while, at the same time, preserving public welfare, health, and the general intent of the City of Fernley Master Plan. An additional purpose of this chapter is to provide a degree of certainty for the duration of build out of a large tract of land, such certainty not otherwise available in other chapters of this title.~~

(a) Definitions

- (1) "Master development plan" means a plan, as that term is defined in NRS 278A.060, and accompanying maps which identify the proposed location and size of development parcels, land uses, and zoning designations; transportation plans and a traffic impact analysis; open space, community facilities, and amenity plans; and the applicable development regulations and design standards.
- (2) "Development standards" means the minimum standards for development in the Planned Development District, including but not limited to standards for intensity and type of use; densities; building design, layout, configuration, height, coverage, spacing, bulk, and setback requirements; provisions for utilities; topography and drainage patterns; signage; open space and landscaping; on-site vehicular and pedestrian circulation and parking; urban design elements and features; and site amenities.

(b) Rezoning and Minimum siteSite Area.

- (1) Property may be rezoned to the Planned Development District by the City Council in accordance with the requirements of this Section and Section 32.03.030. Each rezoning parcel shall be described as a separate district, with distinct boundaries and specific design and development standards. The rezoning shall include the adoption of a specific master development plan and development standards.
- (2) The minimum site area is five-forty (40) acres. The City Council may waive this minimum if the proposal furthers the goals of the City's Comprehensive Master Plan.
- ~~(2) The city council may waive this minimum if the proposal furthers the city's adopted redevelopment plan.~~

~~(b)~~ Requirements for all planned development reviews Application Requirements.

- ~~(1) Permitted uses. A planned unit development may include any uses permitted in any zone classification provided that any combination of uses is planned in a manner compatible to each and to the surrounding environment and shall be consistent with the city's master plan.~~ Concept Plan Review. In the case of property that is sought to be reclassified to the

Planned Development District, the applicant must submit conceptual plans and meet with the administrator, or the administrator's designee, before the City has any obligation to accept the rezoning application as complete. At the meeting, the administrator or the administrator's designee shall:

- a. Ask questions of the applicant to clarify their understanding of the applicant's intent;
- b. Ensure the applicant understands all required steps in the development review process; and
- c. State any concerns identified by staff based on preliminary review of project plans and materials.

(2) In addition to the submittals required by Section 32.03.030, the following must accompany an application for rezoning submitted by a property owner:

- a. A statement by the applicant describing how the proposed development departs from the otherwise applicable standards of this Code and how the proposed development is an improvement over what would otherwise be required by applicable development regulations.
- b. A metes and bounds description of the proposed Planned Development District.
- c. A proposed master development plan for the entire site.
- d. Development standards that are proposed to be applied to the development. The development standards must include provisions regarding the installation of utility boxes and above ground utilities that are at least as restrictive as those set forth in this Title for comparable development.
- e. Any proposed conditions, covenants, and restrictions for the development including easements and grants for public utilities.
- f. The location of primary and secondary thoroughfares proposed for the development, including right-of-way widths and the location of access points to abutting streets.
- g. Identification of all rights-of-way, easements, open spaces or other areas to be dedicated, deeded or otherwise transferred to the City.
- h. A plan for the extension of any necessary public services and facilities, including sewer facilities and facilities for flood control and drainage.
- i. Guidelines for the physical development of the property, including illustrations of proposed architectural, urban design, landscape, open space, and signage concepts.
- j. The location and description of all buffering that is proposed between the development site and adjacent properties.

- k. Additional information and details may be required in order to respond to the unique characteristics of the site and its location.
 - l. In the case of plans which call for development over a period of years, a schedule showing the proposed times within which applications for additional approval of all sections of the PD District are intended to be filed.
- (3) If the land uses proposed by the project differ significantly from the land uses allowed by the existing Master Plan designation for the area, an application for rezoning to the PD District must be accompanied by and processed concurrently with an application for a comprehensive master plan amendment to ensure that the land uses proposed by the project are consistent with the Comprehensive Master Plan.

(d) Permitted Uses and Standards

- (1) Any combination of residential, commercial, industrial, or public uses may be permitted within a specific Planned Development District to the extent they are consistent with the Master Development Plan for that District. The uses to be permitted within the District must be specified in the adopted Master Development Plan for the District. Because of the nature and purpose of the PD District, and notwithstanding any other provision of this Section:
- a. An application to rezone property to the PD District may be denied by the City Council, at its complete discretion, if it finds that the proposed development is incompatible or out of harmony with surrounding uses or the pattern of development within the area.
 - b. No use, type of development or development standard is presumptively permitted within the PD District unless it already has been included in the adopted plan for the District.
 - c. An application to allow within the PD District a particular use, type of development or development standard which has not already been included in the adopted plan for the District may be denied if it is incompatible or out of harmony with the surrounding uses or the pattern of development within the area.
- (2) Density. The allowable density for a planned unit development shall be within the range established in the City of Fernley Master Plan. For PD Districts with residential development, the master development plan shall establish the maximum number of dwelling units per gross acre for each residential category (e.g., single family, multi-family, etc.) as well as for the entire development. Factors to be considered in assigning density are:
- a. Site analysis;
 - b. Topography;
 - c. Drainage ways;

- d. Views;
- e. Soils;
- f. Layout of lots;
- g. Site sectional studies.

(3) ~~Common o~~Open space.

- a. ~~Subject to the limitations of this section, all developments must provide for a minimum of 20 percent common open space.~~Subject to the limitations of this section, all developments that include residential uses must provide for, within the Planned Development district boundary, a minimum of 20 percent of the gross area of the site as common usable open space.
- b. Irrespective of its size, no golf course may contribute more than one-quarter of the common open space required by this section.
- c. The common open space required by this section may be reduced by one quarter if it can be demonstrated to the satisfaction of the administrator that the common open space is:
 - 1. Landscaped, in a manner which exceeds the minimum standards imposed in [chapter 32.09](#);
 - 2. Is interconnected with a trail system;
 - 3. Accessible from other portions of the development, with said accessibility provided for in the development plan;
 - 4. For nonresidential development the common open space requirement can be met by providing a minimum of 20 percent of the development as landscaped area, which exceeds the minimum standards imposed in [chapter 32.09](#).
- d. Developments that do not include residential uses must provide for, within the Planned Development district boundary, a minimum of 10 percent of the gross site area as open space, which can be met by providing a combination of landscaping, trails, sidewalks, and bicycle lanes.
- e. Land dedicated to and accepted by the City shall not constitute common open space for the purposes of this chapter except as otherwise provided in an approved development agreement.

(4) Buffer zones.

- a. The applicant must demonstrate, to the satisfaction of the administrator, the proposed buffer zones between dissimilar uses within the development is sufficient.
 - b. Special design considerations such as height controls, density controls, architectural modifications, and landscaping buffers shall be incorporated in any portion of the development which adjoins a previously approved entitlement.
- (5) Landscaping on private property. Because a planned development may allow for increases in density, additional landscaping requirements may be imposed by the administrator for Planned Developments with residential development. The developer must provide an incentive plan for front yard landscaping and automated irrigation for single-family homes which will be approved as a part of the architectural manual development standards.
- (6) ~~Existing projects.~~ Existing projects may be considered for planned development if, in the opinion of the administrator, they do not pose any health, safety or welfare problems.
- (7) Dedication. Any land or interest therein within a planned unit development may be dedicated to the city for public use and maintenance, although the city is under no obligation to accept such dedication. ~~In no event does land dedicated to and accepted by the city constitute common open space for the purposes of this chapter.~~

(8) Maintenance of common open space.

- a. Common open space areas, which may include walkways with public access easements, shall be maintained as permanent open space through at least one of the following options: common ownership by a property owner's association, held in deed-restricted private ownership, or dedication to the City or to another appropriate public agency.
- b. All methods utilizing private ownership shall be in a form approved by the City Attorney, who shall review the documents to ensure perpetual maintenance, preservation, and restricted usage where applicable.

(e) Approval of Master Development Plan and Development Standards.

- (1) The Planning Commission shall hold a public hearing on the proposed PD zone change and, within 60 days of the public hearing, make a recommendation to the City Council.
- (2) After receiving the recommendation of the Planning Commission, the City Council shall act to approve, approve with conditions, or deny the proposed PD zone change.
- (3) In connection with the approval of a Planned Development District, the City Council shall adopt a Master Development Plan and Development Standards, which will thereafter govern the development of property within the District. The approved Master Development Plan and Development Standards for a Planned Development District shall be recorded with the applicable rezoning ordinance and a statement listing all conditions of approval.
- (4) In considering the approval of a Master Development Plan and Development Standards for a Planned Development District, the Planning Commission and City Council shall be guided

by the following objectives, and may impose such conditions and requirements deemed necessary to meet those objectives:

- a. Consistency of the proposed development with the City's Comprehensive Master Plan and other applicable plans, policies, standards, and regulations.
- b. Compatibility of the proposed development with adjacent and surrounding development.
- c. Minimization of the development's impact upon adjacent roadways and neighborhood traffic, and upon other public facilities and infrastructure.
- d. Protection of the public health, safety, and general welfare.

(f) Modification of Master Development Plan and Development Standards.

(1) The development of property within the Planned Development District may proceed only in strict accordance with the approved Master Development Plan and Development Standards. Any request by or on behalf of the property owner, or any proposal by the City, to modify the approved Master Development Plan or Development Standards shall be filed with the administrator. A Minor Modification is a modification which is requested or agreed to by the property owner and which is intended to accomplish one or more of the following:

- a. A change in the location of a use from the location specified in the approved Master Development Plan, but only if the change in location will not have a significant impact on other uses in the area.
- b. The addition of uses that are comparable in intensity to those permitted in connection with the rezoning approval or the approval of a Master Development Plan for the District.
- c. A change in parking lot layout, building location or other similar change that conforms with the intent of the previously approved Master Development Plan and Development Standards.
- d. A change in the species of plant material proposed for the District.
- e. A decrease in the density or intensity of development from that previously approved for the District.
- f. Any other change or modification of a similar nature which the administrator determines will not have a significant impact on the District or its surroundings. A Minor Modification shall be reviewed and acted upon administratively by the administrator. An applicant who is aggrieved by the administrator's decision may appeal that decision to the Planning Commission by filing a written appeal with the administrator no later than 10 days after the date the applicant receives notice of the administrative decision.

(2) Major Modification. A Major Modification includes any modification which does not qualify as a Minor Modification. A Major Modification shall be processed in accordance with the procedures and standards applicable to a rezoning application.

(g) Administrative Review.

All development within a PD District is subject to the administrative review procedures set forth in Section 32.03.050 except as otherwise provided in a development agreement.

(h) Issue Resolution – Analogous Standards

With regard to any issue of land use regulation that may arise in connection with a Planned Development District and that is not addressed or provided for specifically in this Section or in the approved Master Development Plan and Development Standards for that District, the administrator may apply by analogy the general definitions, principles, standards, and procedures set forth in this Title, taking into consideration the intent of the approved Master Development Plan and Development Standards.

~~(Ord. No. 2020-005, § 1(Exh. A), 3-4-2020.)~~



CITY OF FERNLEY

Planning Commission AGENDA REPORT

Meeting Date: October 11, 2023

REPORT TO: Fernley Planning Commission

REPORT FROM: Shay League

FINANCIAL IMPACT:

Yes: No: X

CURRENTLY BUDGETED:

Yes: No: X

FUND/ACCOUNT:

N/A

ACTION REQUESTED: Motion

AGENDA ITEM:

(For Possible Action) Discussion and possible action on an annexation application (ANX23001) submitted by Summit Engineering on behalf of Lansing Companies regarding a request to annex a ±155.60-acre parcel generally located west of Duffy Drive, east of Truck Inn Way, and northwest of Nevada Pacific Parkway at Interstate 80 (APN: 021-581-07) into the City of Fernley.

AGENDA ITEM BRIEF:

This parcel is contiguous to the existing City of Fernley boundaries. After annexation, the developer hopes to receive further approvals to rezone this property to Industrial and pursue construction of a project with the working name "Nevada Pacific Industrial Center".

RECOMMENDED MOTION:

Approval

"I move to adopt the findings related to considerations of approval AX1 through AX4 as presented in the staff report and recommend Council adopt a resolution to annex APN: 021-581-07 into City of Fernley, convert the zoning of said parcel from RR5 to GR20, and prohibit development on this parcel until the North Fernley Area Plan is complete."

or

Denial

"Based on information received in written materials and the public hearing on this matter, I move to forward a recommendation of denial to City Council for the annexation request associated with ANX23001. I am unable to make the following required findings:"

"I am unable to make finding _____ as it relates to _____. " (Repeat for each applicable finding)."

BUSINESS IMPACT (per NRS Chapter 237):

A Business Impact Statement is not required because this is not a rule (term excludes vehicles by which legislative powers are exercised under NRS Chapters 271, 278, 278A, or 278B).

See attached report for background, analysis, alternatives.

ALTERNATIVES:

Though no other specific language has been provided, any motion that complies with City of Fernley Planning Commission parliamentary procedure is appropriate.

BACKGROUND:

In 2020, Esplanade Investments LLC and Gardens on Green Bay LLC purchased this parcel with the intention of developing Nevada Parkway Industrial Center. The parcel is currently vacant and surrounded by similarly vacant parcels, but abuts land undergoing the development process as part of the Victory Logistics project. Completion of the Victory Logistics project will extend the City of Fernley's industrial core northward towards this parcel.

CONSIDERATIONS FOR APPROVAL:

AX1. The request conforms to the requirements of NRS chapter 268.

Factors that must be considered in the review of an annexation proposal include, but are not limited to:

1. Population, population density, land area and land uses, per capita assessed valuation, topography, including natural boundaries and drainage basins, proximity to other populated areas, and the likelihood of significant growth in the area and in adjacent incorporated and unincorporated areas during the next 10 years.

The subject parcel and surrounding parcels are currently vacant. The nearest land uses are industrial in nature. This area is designated as being in the North Fernley Future Development Area in the City of Fernley Comprehensive Master Plan.

2. The need for organized community services, the present cost and adequacy of governmental services and controls in the area, probable future needs for such services and controls, and the probable effect of the proposed formation and of alternative courses of action on the cost and adequacy of services and controls in the area and adjacent areas.

Because the subject parcel is within the North Fernley Future Development Area, Staff recommends it not be allowed to develop if annexed until the North Fernley Area Plan is complete. This will allow for a better determination regarding how to address the need for organized community services, etc. in the area.

3. The effect of the proposed annexation and of alternative actions on adjacent areas, on mutual social and economic interests and on the local governmental structure of the county.

The proposed annexation is expected to eventually have a positive impact on the mutual social and economic interests of City of Fernley and Lyon County. As it currently exists, the parcel is in an outlying portion of Lyon County that cannot serve an industrial facility with the types of utilities needed. If annexed to City of Fernley, and planned for adequately during the area plan process, staff believes this parcel may be developed to the mutual economic benefit of Lyon County and City of Fernley.

4. The effect of the proposed annexation and of alternative actions upon the availability and requirement of water and other natural resources throughout the affected area.

As part of the City of Fernley development process, the applicant will be required to ensure adequate water access to the subject parcel.

5. Any determination by the Bureau of Land Management that the territory proposed to be annexed is suitable for residential, commercial, or industrial development, or will be opened to private acquisition.

Not Applicable. This parcel is not being annexed from the Bureau of Land Management.

6. The consistency of the annexation proposal with any applicable comprehensive regional plan, area plan or master plan and any program of annexation adopted and certified pursuant to NRS 268.625.

This parcel is currently designated by the Lyon County Comprehensive Master Plan as a cooperative planning area. The county expects this parcel to be developed by (or with the input of) City of Fernley. The City of Fernley Comprehensive Master Plan currently designates this parcel as General Rural, and as part of the North Fernley Future Development Area. Staff's recommendation is that City of Fernley keep our General Rural land use designation and convert the zoning from Lyon County's RR5 to our GR20 if the parcel is annexed. The GR20 is expected to be a placeholder zoning designation until the area plan process indicates a preferred land use.

AX2. The request conforms to the findings established for annexation:

Location of the property to be considered for annexation

The parcel is contiguous to current City of Fernley boundaries.

The logical extension of City limits

Because this parcel is contiguous, and because we are looking toward future development near this area, this could be considered a logical extension of City limits.

The need for expansion to accommodate planned regional growth

Though the area plan is not yet complete, this area is primed for development of an extensive industrial area. This parcel hopes to develop in the same manor and it would be much easier for the developer to succeed in their endeavor if the parcel were a part of City of Fernley rather than Lyon County.

The location of existing and planned water and sewer service

It would be inefficient for Lyon County to provide water and sewer service to this parcel. While it would currently also be inefficient for City of Fernley to provide these services, we hope to address that through the area plan process.

Community goals that would be met by the proposed annexation

The applicant's response to community goals that would be met by the proposed annexation may be found in the attached "Applicant Narrative". Staff was unable to identify any of our 214 goals and action strategies that apply specifically to this project. There are some action strategies that we apply to our development application process in general; however, this project does not appear to directly support any of them.

The efficient and cost-effective provision of service areas and capital facilities

City of Fernley does not yet know the best manner to provide efficient and cost-effective services to this area; however, we are currently working on an area plan to address that question.

Fiscal analysis regarding the proposed annexation

The submitted fiscal impact analysis is attached to this report for your consideration. It reports that City of Fernley should expect this project to generate a \$1.9 revenue surplus over a 20-year analysis period and a \$3 million revenue surplus over the 40-year analysis period for the General Fund. Much of the revenue in the report appears to be attributed to our building and planning fees.

Whether Lyon County has adopted a community management plan for the proposed annexation area

Lyon County has not adopted a community management plan for the proposed annexation area.

Whether the annexation creates any islands

This annexation would not create any islands.

Any other factors concerning the proposed annexation deemed appropriate for consideration by the City Council

Staff has not identified any additional factors to consider, but is happy to provide information regarding any factors that Planning Commission or Council deem appropriate for consideration.

AX3. The property requested to be annexed conforms to the master plan.

If City of Fernley converts Lyon County's RR5 zone to GR20 through the annexation process, the property will

conform with our master planned land use of General Rural. Staff prefers, and our code supports, preventing development on this parcel (if annexed) until the area plan process determines whether a new master planned land use will be more appropriate for this parcel than the current one. Given the parcel's location along the I-80 corridor, it's likely our area plan process will determine that a more intensive use (such as Commercial or Industrial) is appropriate; however, staff would like to ensure that we conduct our due diligence before approving any sort of development in the North Fernley Future Development area.

AX4. Public notice was given, and a public hearing held per the requirements of the development code.

Staff certifies that public notice was given in compliance with Nevada Revised Statutes and Title 32 of Fernley Municipal Code; the applicant's parcel is the only parcel proposed for annexation and an advertisement appeared in the Reno Gazette Journal on September 24, 2023. In addition to the minimum requirements, Planning Department mailed notice letters to 66 parcels located within a 7,000 foot buffer of the subject parcel. A public hearing will be held at the October 11, 2023 Planning Commission meeting and again at the November 15, 2023 City Council meeting.

RELEVANT LAWS, STATUTES, AND REGULATIONS:

General:

[Nevada Revised Statutes \(NRS\), Chapter 268](#) - Powers and Duties Common to Cities and Towns
[Fernley Municipal Code \(FMC\), Title 32](#) - Development Code

Specific:

[NRS 268.610 - 268.671](#) - Annexation by Cities in Other Counties
[FMC Section 32.03.040\(a\)](#) - Annexation

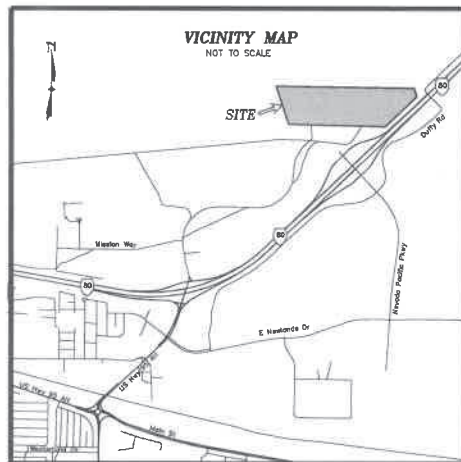
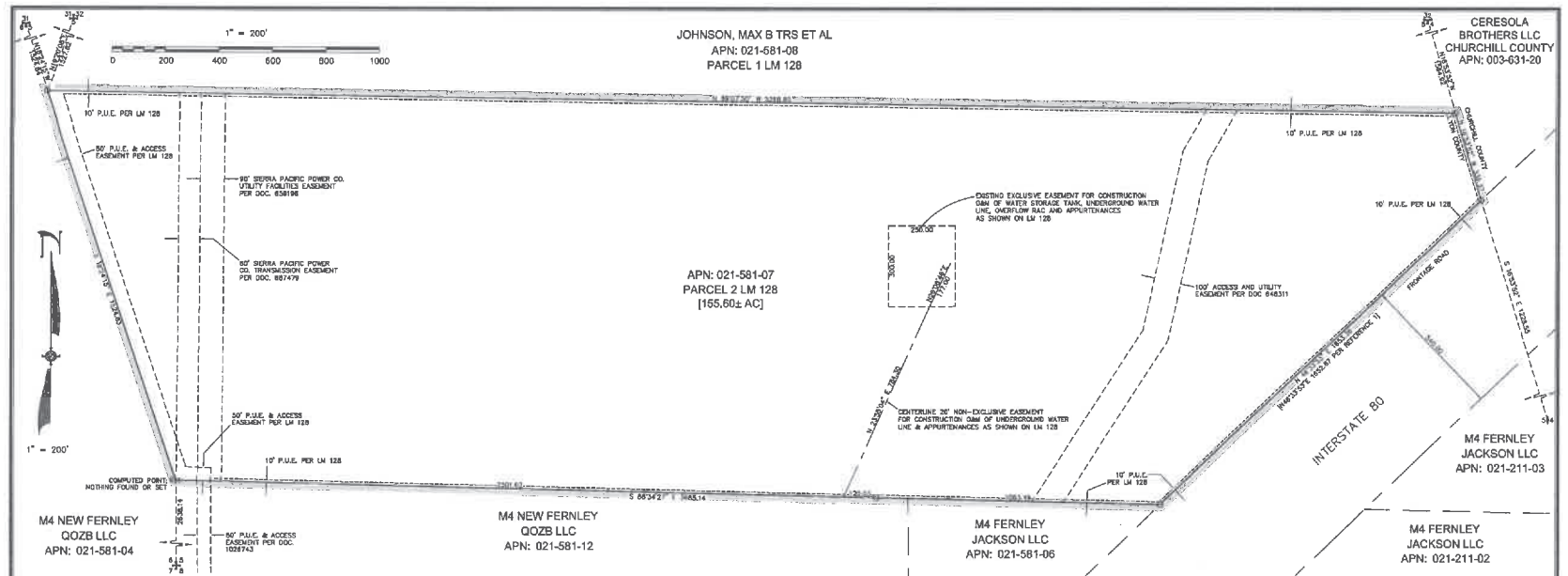
Note: This list and links for relevant laws, statutes, and regulations is intended for convenient reference and is not all-inclusive. Planning Department will ensure all links are active and relevant until the October 11, 2023 Planning Commission meeting, but does not guarantee the links will remain accurate or relevant after that date.

FINANCIAL IMPLICATIONS:

N/A

ATTACHMENTS:

1. Proposed Annexation Map
2. Legal Description
3. Applicant Narrative
4. Vicinity Map
5. Fiscal Impact Analysis



GENERAL NOTES:

1. THE PETITIONERS WHO HAVE CONSENTED TO THE ANNEXATION TO THE CITY OF FERNLEY ARE CONTAINED WITHIN THE DOCUMENT NO. _____ FILED IN THE OFFICIAL RECORDS OF LYON COUNTY, NEVADA.
2. THIS MAP IS COMPILED FROM RECORD INFORMATION AND DOES NOT REPRESENT A FIELD SURVEY. ALL BEARINGS AND DISTANCES SHOWN ARE RECORD FOR THE RECORDS DOCUMENTS SHOWN.
3. PUBLIC LAND SURVEY SYSTEM CORNERS ARE SHOWN PER RECORD INFORMATION WHERE AVAILABLE.
4. ANNEXATION AREA SHOWN IS COMPILED FROM RECORD INFORMATION.

SURVEYOR'S CERTIFICATE:

1. RYAN G. COOK, A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF NEVADA, CERTIFY THAT:
1. THIS MAP CORRECTLY REPRESENTS THE LAND PROPOSED FOR ANNEXATION TO THE CITY OF FERNLEY.
2. THIS MAP IS BASED UPON RECORD INFORMATION FROM THE REFERENCES INDICATED HEREON, AND DOES NOT REPRESENT A FIELD SURVEY. NO MONUMENTS HAVE BEEN SET.
3. THE LANDS SHOWN ARE WITHIN THE SOUTH 1/2 OF THE NORTH 1/2 OF SECTION 5, TOWNSHIP 20 NORTH, RANGE 25 EAST, M.D.M.

RYAN G. COOK

CITY COUNCIL CERTIFICATE:

APPROVED AND ACCEPTED BY THE CITY COUNCIL OF FERNLEY, LYON COUNTY, NEVADA, THIS _____ DAY OF _____, 2023, AS PER ORDINANCE NO. _____

APPROVED _____ 2023 BY _____

THE FERNLEY CITY COUNCIL, FERNLEY, NEVADA.

NEAL E. MONTHS, MAYOR

LEGEND:

- COMPUTED POINT, NOTHING FOUND OR SET
- LIMITS OF ANNEXATION
- - - ADJOINING BOUNDARY
- - - INTERSTATE RIGHT-OF-WAY
- P.U.E. PUBLIC UTILITY EASEMENT
- LM LAND MAP

LEGAL DESCRIPTION:

ALL THAT CERTAIN REAL PROPERTY RELATE IN THE COUNTY OF LYON, STATE OF NEVADA, DESCRIBED AS FOLLOWS:

PARCEL 2 AS SHOWN ON MAP OF DIVISION INTO LARGE PARCELS, FOR JOHNSON ET AL, LAND MAP NO. 128, ACCORDING TO THE MAP THEREOF, FILED IN THE OFFICE OF THE COUNTY RECORDER OF WASHOE COUNTY, STATE OF NEVADA, ON JULY 25, 1895, AS FILED NO. 115147, OFFICIAL RECORDS.

PURSUANT TO ASSEMBLY BILL NO. A.B. 440, ON OCTOBER 1, 2000, SAID LAND IS NOW LOCATED IN LYON COUNTY, STATE OF NEVADA.

APN: 021-581-07

OWNERS CERTIFICATE:

THIS IS TO CERTIFY THAT THE UNDERSIGNED ESPLANADE INVESTMENTS, LLC, A TEXAS LIMITED LIABILITY COMPANY AND GARDENS ON GREEN BAY, LLC, A WISCONSIN LIMITED LIABILITY COMPANY, AS TENANTS IN COMMON ARE THE OWNERS OF THE REAL PROPERTY DEPICTED HEREON AND HAVE CONSENTED TO THE PREPARATION AND RECORDATION OF THIS PLAT AND THAT THE SAME IS EXECUTED IN COMPLIANCE WITH AND SUBJECT TO THE PROVISIONS OF N.R.S. 278.

ESPLANADE INVESTMENTS, LLC, A TEXAS LIMITED LIABILITY COMPANY

BY:

ITS:

STATE OF _____

COUNTY OF _____

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS _____ DAY OF _____, 2023, BY _____ AS _____ OF ESPLANADE INVESTMENTS, LLC, A TEXAS LIMITED LIABILITY COMPANY.

NOTARY PUBLIC

GARDENS ON GREEN BAY, LLC, A WISCONSIN LIMITED LIABILITY COMPANY

BY:

ITS:

STATE OF _____

COUNTY OF _____

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS _____ DAY OF _____, 2023, BY _____ AS _____ OF GARDENS ON GREEN BAY, LLC, A WISCONSIN LIMITED LIABILITY COMPANY.

NOTARY PUBLIC

REFERENCES:

1. STATE OF NEVADA DEPARTMENT OF HIGHWAYS RIGHT OF WAY DIVISION PROPERTY, MAP E.A. NO. 700'S SHOWING INTERSTATE 80 RIGHT-OF-WAY WITHIN PORTIONS OF SECTION 4 & 5, TOWNSHIP 20N, RANGE 25E, M.D.M.
2. RIGHT-OF-WAY GRANT, DOCUMENT NO. 887476, RECORDED AUGUST 11, 1980 IN THE OFFICIAL RECORDS OF LYON COUNTY, NEVADA.
3. RIGHT OF WAY GRANT, DOCUMENT NO. 734716, RECORDED APRIL 23, 1981 IN THE OFFICIAL RECORDS OF LYON COUNTY, NEVADA.
4. OUTLETAIR DEED, DOCUMENT NO. 1028745, RECORDED MARCH 14, 1983 IN THE OFFICIAL RECORDS OF WASHOE COUNTY, NEVADA.
5. MAP OF DIVISION INTO LARGE PARCELS FOR JOHNSON ET AL, LAND MAP NO. 128, FILE NO. 115147, RECORDED JULY 25, 1895 IN THE OFFICIAL RECORDS OF WASHOE COUNTY, NEVADA.
6. DESCRIPTION OF THE EXTERIOR BOUNDARY OF THE INCORPORATED CITY OF FERNLEY, NEVADA, FILE NO. 202770, RECORDED JUNE 28, 2001 IN THE OFFICIAL RECORDS OF LYON COUNTY, NEVADA.
7. MAP TO SUPPORT PETITION FOR ANNEXATION OF CERTAIN LANDS TO THE CITY OF FERNLEY, NEVADA, FILE NO. 202770, RECORDED JUNE 28, 2001 IN THE OFFICIAL RECORDS OF LYON COUNTY, NEVADA.
8. AFFIDAVIT OF RECORDING, DOCUMENT NO. 402632, RECORDED APRIL 5, 2007 IN THE OFFICIAL RECORDS OF LYON COUNTY, NEVADA.
9. STATE OF NEVADA DEPT. OF TRANSPORTATION R/W DIVISION R/W PLANS DATED JANUARY 17, 2008, SHEETS 9-11 OF 12.
10. GRANT, BARGAIN, AND DEED, DOCUMENT NO. 810008, RECORDED AUGUST 31, 2020 IN THE OFFICIAL RECORDS OF LYON COUNTY, NEVADA.
11. EASEMENT AGREEMENT, DOCUMENT NO. 848391, RECORDED NOVEMBER 17, 2021 IN THE OFFICIAL RECORDS OF LYON COUNTY, NEVADA.
12. GRANT OF EASEMENT, DOCUMENT NO. 856198, RECORDED JUNE 24, 2022 IN THE OFFICIAL RECORDS OF LYON COUNTY, NEVADA.
13. PRELIMINARY REPORT PREPARED BY TIGOR TITLE, ORDER NO. 02302463-03, DATED JULY 13, 2023 AT 7:30 AM.

BASIS OF BEARINGS:

(IDENTICAL TO REFERENCE A (LAND MAP NO. 128) BEING NEVADA WEST ZONE GRID SYSTEM (NAD 1983) ESTABLISHED FROM TURN (N25) TO T-2 (N25) BEARING S 25°17'28.5" E

MAP TO SUPPORT PETITION FOR ANNEXATION OF LAND TO THE CITY OF FERNLEY PREPARED FOR ESPLANADE INVESTMENTS, LLC, A TEXAS LIMITED LIABILITY COMPANY, AND GARDENS ON GREEN BAY, LLC, A WISCONSIN LIMITED LIABILITY COMPANY, AS TENANTS IN COMMON LOCATED WITHIN THE SOUTH 1/2 OF THE NORTH 1/2 SECTION 5 TOWNSHIP 20 NORTH, RANGE 25 EAST, M.D.M. LYON COUNTY, NEVADA	
FERNLEY 10-10-2023 10-10-2023	SHEET 1 OF 1

EXHIBIT "A"
LEGAL DESCRIPTION
APN 021-581-07

Parcel 2 as shown on Map of Division into Large Parcels, for Johnson et al, Land Map No. 128, according to the map thereof, filed in the office of the County Recorder of Washoe County, State of Nevada, on July 25, 1990, as File No. 1415467, Official Records.

Pursuant to Assembly Bill No. A.B. 440, on October 1, 2005, said land is now located in Lyon County, State of Nevada.

APN: 021-581-07

Description Prepared By:

Ryan G. Cook, PLS 15224

Summit Engineering Corporation

5405 Mae Anne Ave., Reno, NV 89523

775-747-8550





CITY OF FERNLEY, NV – BOUNDARY EXHIBIT

August 14, 2023

City of Fernley, Nevada
Planning Department
595 Silver Lave Boulevard
Fernley, NV 89408
Ph: (775) 784-9810

REQUEST FOR ANNEXATION – 155.06 ACRES – APN: 021-581-07

Pursuant to the items as required for the request to annex said property into the City of Fernley, the information is as follows:

LOCATION OF PROPERTY

The subject property is located on the north side of Interstate 80 at Nevada Pacific Parkway interchange, contiguous to the City of Fernley boundary.

LOGICAL EXTENSION OF CITY LIMITS

Being that the subject property is contiguous to the current City of Fernley boundary makes it easy to wrap said property within the city limits.

THE NEED FOR THE EXPANSION TO ACCOMMODATE PLANNED REGIONAL GROWTH WITHIN 7 YEARS

The future growth areas currently being seen are within the industrial zoned areas in and around Interstate 80 and Nevada Pacific Parkway. Mark IV Development and others have set the precedent with Victory Logistics, and we believe that our vision for future development within our said 155.06 acres will continue the trend for economic growth as a benefit to the City of Fernley.

UTILITIES - LOCATION OF WATER AND SEWER

Currently there is an existing water main that runs within or around the future Truck Inn Way alignment from Interstate 80 interchange at Flying J Truck Stop east to an existing water tank within our said 155.60 acres. The nearest existing sanitary sewer service is adjacent to the existing Flying Truck Stop to the west of said 155.60 acres.

ACCEPTED LEVEL OF SERVICE CAN BE PROVIDED

We currently have an existing oversize water main that passes through our said 155.60 acres the level of domestic water can be provided. If not we would propose a new water main in Truck Inn Way west to point of connection at Flying J Truck Stop. Furthermore, being that the proposed use is for a logistics center, the number of bathroom facilities needed for said buildings will be minimal. We would propose as an interim condition for commercial septic until such time as a gravity of force main sewer system is constructed west with the Truck Inn Way alignment west to tie in at the interchange by Flying J Truck Stop where existing sewer exists.

There is currently existing overhead power and telephone adjacent and with said 155.60 acres. We granted NV Energy a new overhead power transmission easement as an upgrade to the existing power / sub-station on the north side of Interstate 80. Furthermore, NV Energy is expanding the existing sub-station in conjunction with the future transmission line as proposed for future electrical service to the area.

CITY GOALS / POLICIES THAT WOULD BE MET BY U1E PROPOSED ANNEXATION

Pursuant to the Comprehensive Master Plan – Goals and Policies – Section 1.5, being that this proposed annexation for said 155.60 acres is for a proposed logistics center which will create jobs within the City of Fernley which will further support the need for affordable housing within the "CORE" area.

THE EFFICIENT AND COST-EFFECTIVE PROVISION OF SERVICE AREAS AND CAPITAL FACILITIES

If we are required to construct a new gravity or force main sewer system within Truck Inn Way from the existing sewer system at Flying J Truck Stop east to said 155.60 acres, we would work with the City of Fernley to design for future growth needs on the north side of interstate 80 to be serviced by said new sewer system.

FISCAL ANALYSIS REGARDING THE PROPOSED ANNEXATION DEMONSTRATING FISCALLY POSITIVE FOR 20 YEARS

Fiscal analysis is provided by EKAY Economics – Attached.

ARE THERE ANY ADOPTED PLANS FOR THE PROPOSED ANNEXATION AREA

None that we are aware of at this time.

DOES ANNEXATION CREATE AN ISLAND

The proposed annexation of said 155.60 acres borders the City of Fenley's boundary to the south and east thus NO ISLAND is created by such annexation. The New City of Fernley boundary would wrap said 155.60 acres to the west and north property lines.

LIST OF ITEMS ATTACHED:

- a. Application / Letter of Authorization / Articles of Ownership
- b. Title Report
- c. Street / Vicinity Map
- d. Annexation / Boundary Map
- e. Survey Map / Legal Description – Wet Stamped by Professional Land Surveyor
- f. Conceptual Site Plan
- g. Fiscal Impact Analysis

Thank you for your consideration of our formal request to annex said 155.60 acres within the City of Fernley, Nevada.

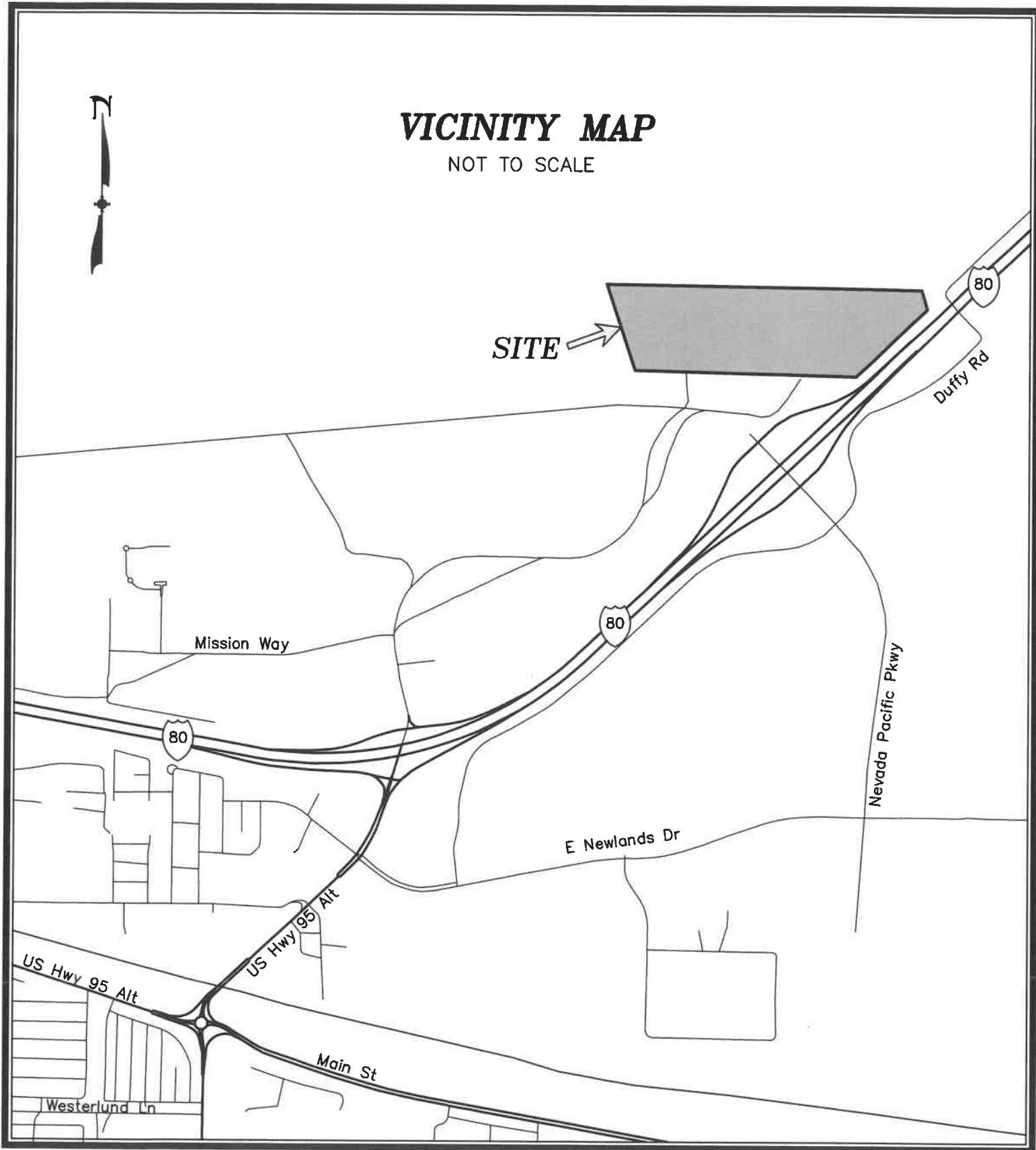
Sincerely


Will Roberts
VP of Land Acquisition & Development
LANSING COMPANIES – RENO, NV
5190 Neil Road, Suite 420
Reno, NV 89502
C (702) 305-8638
P (775) 800-1459
Email: wroberts@lansingcompanies.com

VICINITY MAP

NOT TO SCALE

SITE



NEVADA PACIFIC INDUSTRIAL PARK

City of Fernley Fiscal Impact Analysis

AUGUST 11, 2023

Prepared by:



EKAY Economic Consultants, Inc.
Economics for the changing world®

550 West Plumb Lane
Suite B459
Reno, NV 89509
(775) 232-7203
www.ekayconsultants.com

TABLE OF CONTENTS

EXECUTIVE SUMMARY	I
DEVELOPMENT DESCRIPTION.....	1
METHODOLOGY.....	1
FINDINGS	2
Table 1. Fiscal Impact Analysis Results.....	3
Figure 1. Budget Impact	3
Figure 2. Fiscal Impact Analysis Results	4
LIMITING CONDITIONS & DISCLOSURES.....	5
APPENDICES	6

EXECUTIVE SUMMARY

Ekay Economic Consultants, Inc. (EEC) of Reno, Nevada was retained to conduct a fiscal impact analysis of the 155.6-acre Nevada Pacific Industrial Park located north of I-80 and Nevada Pacific Parkway and proposed to be annexed to the City of Fernley, Nevada. Project details and findings of the fiscal impact analysis are summarized below.

Project Overview

- The project is expected to include six buildings totaling 987,800 square feet of industrial space constructed on 155.6 acres.
- The project is expected to add 217,800 square feet of roads to the City of Fernley inventory upon development.

Fiscal Impact Findings

- The project is estimated to generate a **\$1.9 million revenue surplus** (net fiscal impact) over the 20-year and **\$3.0 million** over the 40-year analysis periods for the City of Fernley's General Fund.
 - The project is estimated to generate \$3.5 million in revenue for the General Fund over the 20-year and \$7.7 million over the 40-year analysis periods. This includes property tax and building permit/planning fee revenue.
 - The project is estimated to generate \$0.5 in operating expenditures for the City's General Fund over the 20-year and \$1.0 million over the 40-year analysis periods. This includes expenditures for the Public Works and Building and Planning departments.
 - The project is also estimated to generate \$1.1 million in infrastructure replacement costs over the 20-year and \$3.7 million over the 40-year analysis periods.
- The project will have a **positive** fiscal impact on the City of Fernley.

DEVELOPMENT DESCRIPTION

The project will be constructed on 155.6 acres of land proposed to be annexed to the City of Fernley, Nevada. Upon completion, the project will deliver approximately 987,800 square feet of industrial building space across six buildings, with construction expected to start in two years and continue over an 11-year buildout period. The fiscal impact analysis includes estimates of the impact of the project over this period, plus an additional twenty nine years for a total analysis period of 40 years.

Detailed project information, including acres and building square feet developed by use type, by year, is shown in Appendix 1 at the end of this report.

METHODOLOGY

City of Fernley is working with a consulting company, Verdunity, to arrive at a methodology for estimating fiscal impacts of future projects on the City. A tool has been created for City staff to estimate fiscal impacts of projects based on project-related information provided by developers.

EEC was provided a copy of the "Development Fiscal Impact Analysis Tool Methodology and Instructions" report by Verdunity, dated July 2021. The report outlined much of the methodology and assumptions behind the City's fiscal impact tool. EEC provided a number of questions to the City regarding this methodology, answers to which were not received prior to the due date of this report. As a result, findings of the fiscal impact analysis contained in this report, which are based on our understanding of Verdunity's methodology, may need to be updated as additional information becomes available.

The following assumptions were made in this analysis:

1. In order to estimate the fiscal impact of the project on the City, the analysis assumes the project is successfully annexed to the City of Fernley, generating city-based revenues and expenditures.
2. Industrial land and improvement values for the project are unavailable at this early stage in the planning process. As a result, the analysis uses average taxable land and

improvement values for nearby industrial uses in City of Fernley, as these provide the latest market information for similar products in the City. Detailed information for this assumption is shown in Appendix 1.

3. The Verdunity methodology covers all General Fund revenues and expenditures. However, it assumes non-residential developments only impact some of these sources. For this industrial development, EEC estimated revenues associated with property tax and building/planning fees only. Operating expenditures for only Public Works and Building and Planning services are included.
4. Additionally, the Verdunity methodology includes a discussion of an estimate of the long-term impact of a project on infrastructure costs to replace and repair city streets. However, no actual cost for this estimate is provided in the Verdunity report. EEC uses street replacement costs for the City of Sparks of \$7 per square foot in 2018 dollars, inflated and rounded to a conservative \$8.50 per square foot for this analysis in 2023 dollars. City of Sparks street replacement occurs 20 years after road construction. As a result, two periods of total road replacement are included in the analysis to cover the 40-year analysis period.
5. The Verdunity report provides no discussion of inflation, as a result, no inflation adjustments have been made to any estimates over the 40-year analysis period.
6. Additional information for revenue and cost estimate methodology, sources of data, calculations, and findings is provided in the appendices attached to this report.

FINDINGS

Findings of the fiscal impact analysis are presented below using table and figure templates from the Verdunity report. Appendices 1-3 attached to this narrative include a detailed calculation of these revenues and expenditures by year and use type, as well as a detailed discussion of all methodology, data, and assumptions.

Nevada Pacific Industrial Park-Fiscal Impact Analysis

Table 1. Fiscal Impact Analysis Results

Non-Inflated Values	Buildout	10 Years	20 Years	30 Years	40 Years
Property Tax Revenue	\$ 1,115,234	\$ 904,028	\$ 3,016,085	\$ 5,128,142	\$ 7,240,198
One-Time Fee Revenue	512,065	434,097	512,065	512,065	512,065
Total Revenue	\$ 1,627,299	\$ 1,338,125	\$ 3,528,150	\$ 5,640,207	\$ 7,752,263
Commercial Expense	\$ 252,072	\$ 252,072	\$ 504,144	\$ 756,216	\$ 1,008,288
Savings for Streets	-	-	1,149,083	2,425,841	3,702,600
Total Costs	\$ 252,072	\$ 252,072	\$ 1,653,227	\$ 3,182,057	\$ 4,710,888
Net Fiscal Impact	\$ 1,375,227	\$ 1,086,053	\$ 1,874,923	\$ 2,458,149	\$ 3,041,375
Per Acre-Revenue	\$ 10,458	\$ 8,600	\$ 22,674	\$ 36,248	\$ 49,822
Per Acre-Expense	1,620	1,620	10,625	20,450	30,276
Per Acre-Net Impact	\$ 8,838	\$ 6,980	\$ 12,050	\$ 15,798	\$ 19,546

Figure 1. Budget Impact

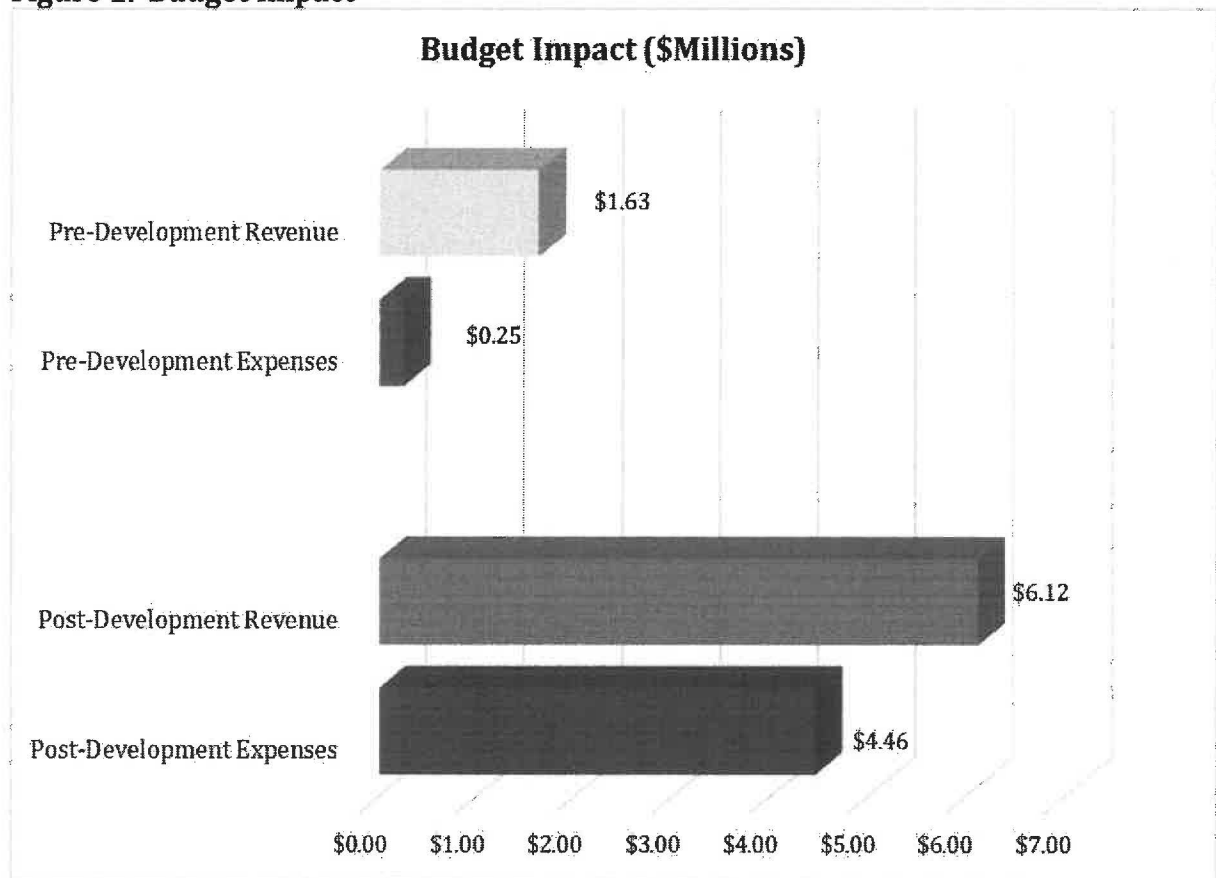
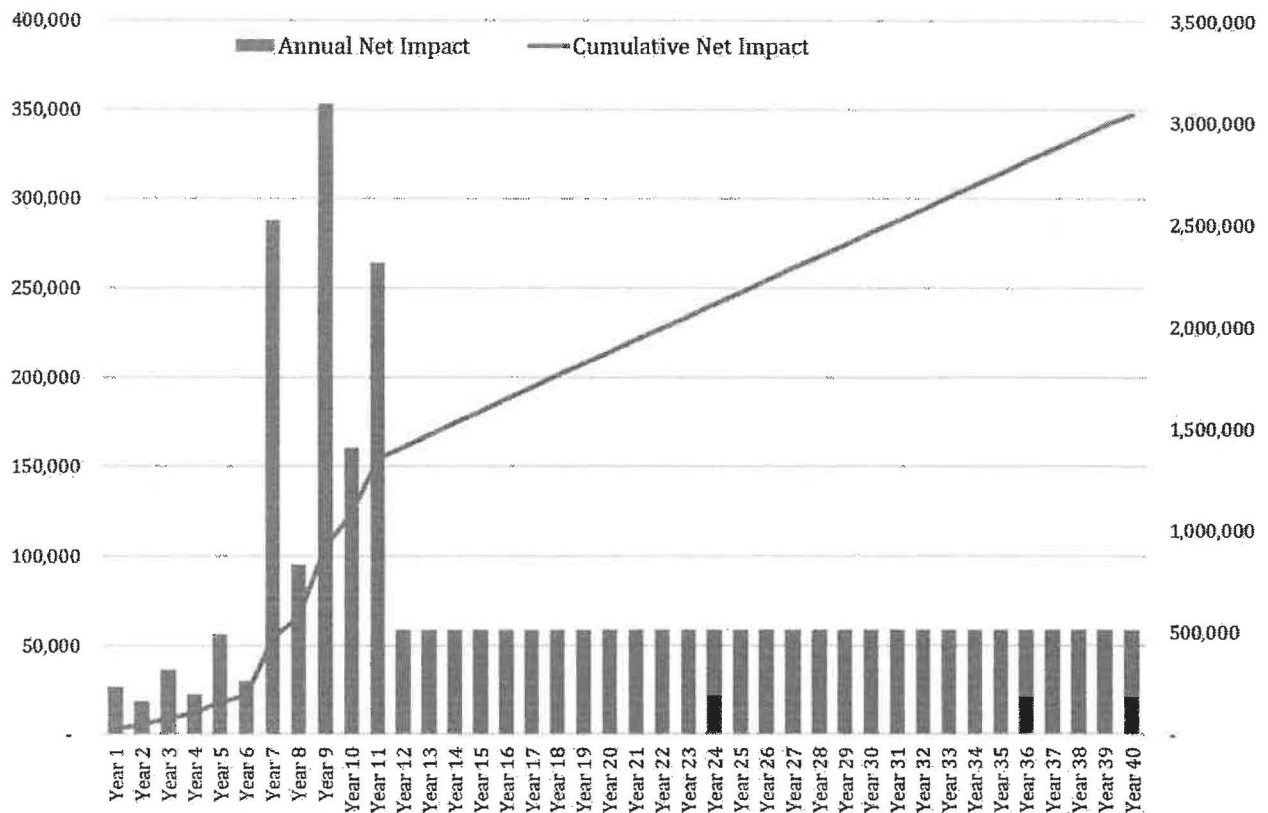


Figure 2. Fiscal Impact Analysis Results



The project is estimated to generate a \$1.9 million revenue surplus (net fiscal impact) over the 20-year and \$3.0 million over the 40-year analysis periods for the City of Fernley's General Fund. This includes \$3.5 million in revenue for the General Fund over the 20-year and \$7.7 million over the 40-year analysis periods generated through property tax and building permit/planning fee revenues.

The project is estimated to generate \$0.5 million in operating expenditures for the General Fund over the 20-year and \$1.0 million over the 40-year analysis periods. This includes expenditures for the Public Works and Building and Planning departments. The project is also estimated to generate \$1.1 million in infrastructure replacement costs over the 20-year and \$3.7 million over the 40-year analysis periods.

The project will have a **positive** fiscal impact on the City of Fernley as project-related revenues significantly exceed project costs, including long-term infrastructure replacement costs.

LIMITING CONDITIONS & DISCLOSURES

In the preparation of this report, EEC asserts:

- The report is to be used in its entirety, and no part is to be used without the whole.
- In preparing this report, EEC relied on information provided by other individuals or found in previously existing records and/or documents. This information is assumed to be reliable. However, no warranty, either expressed or implied, is given by EEC for the accuracy of such information and EEC assumes no responsibility for information relied upon later found to have been inaccurate.
- EEC may amend this report in the event additional documents and/or other material discovered subsequent to the submission of this report and pertinent to the report and/or the conclusions contained herein are made available.
- EEC assumes no responsibility for economic, physical, or demographic factors, which may affect or alter the opinions of this report if said economic, physical, or demographic factors were not present or known as of the date of this report.
- Possession of this report, or a copy of this report, does not carry with it the right of publication. Without the consent of EEC, this report may not be used for any purpose by any person other than the party for whom this report was prepared.

APPENDICES

**APPENDIX I
BUILDOUT ASSUMPTIONS**

<u>YEAR</u>	<u>USE TYPE</u>	<u>SQ.FT. ADDED</u>	<u># OF ACRES</u>	<u>ESTIMATED LAND VALUE</u>	<u>ESTIMATED IMPROV. VALUE</u>	<u>BUILD. PERMIT VALUATION</u>
Year 1	Building 1	8,500			\$ 616,250	\$ 787,440
	Building 2	-			-	-
	Building 3	-			-	-
	Building 4	-			-	-
	Building 5	-			-	-
	Building 6	-			-	-
Subtotal		8,500	155.60	\$ 17,982,827	616,250	787,440
Year 2	Building 1	-			-	-
	Building 2	-			-	-
	Building 3	-			-	-
	Building 4	-			-	-
	Building 5	-			-	-
	Building 6	-			-	-
Subtotal		-	-	-	-	-
Year 3	Building 1	-			-	-
	Building 2	20,000			1,450,000	1,852,800
	Building 3	-			-	-
	Building 4	-			-	-
	Building 5	-			-	-
	Building 6	-			-	-
Subtotal		20,000	-	-	1,450,000	1,852,800
Year 4	Building 1	-			-	-
	Building 2	-			-	-
	Building 3	-			-	-
	Building 4	-			-	-
	Building 5	-			-	-
	Building 6	-			-	-
Subtotal		-	-	-	-	-
Year 5	Building 1	-			-	-
	Building 2	-			-	-
	Building 3	45,000			3,262,500	4,168,800
	Building 4	-			-	-
	Building 5	-			-	-
	Building 6	-			-	-
Subtotal		45,000	-	-	3,262,500	4,168,800
Year 6	Building 1	-			-	-
	Building 2	-			-	-
	Building 3	-			-	-
	Building 4	-			-	-
	Building 5	-			-	-
	Building 6	-			-	-
Subtotal		-	-	-	-	-
Year 7	Building 1	-			-	-
	Building 2	-			-	-
	Building 3	-			-	-
	Building 4	-			-	-
	Building 5	382,400			27,724,000	35,425,536
	Building 6	-			-	-
Subtotal		382,400	-	-	27,724,000	35,425,536

**APPENDIX 1
BUILDOUT ASSUMPTIONS**

<u>YEAR</u>	<u>USE TYPE</u>	<u>SQ.FT. ADDED</u>	<u># OF ACRES</u>	<u>ESTIMATED LAND VALUE</u>	<u>ESTIMATED IMPROV. VALUE</u>	<u>BUILD. PERMIT VALUATION</u>
Year 8	Building 1	-	-	-	-	-
	Building 2	-	-	-	-	-
	Building 3	-	-	-	-	-
	Building 4	-	-	-	-	-
	Building 5	-	-	-	-	-
	Building 6	-	-	-	-	-
Subtotal		-	-	-	-	-
Year 9	Building 1	-	-	-	-	-
	Building 2	-	-	-	-	-
	Building 3	-	-	-	-	-
	Building 4	-	-	-	-	-
	Building 5	382,400	-	-	27,724,000	35,425,536
	Building 6	-	-	-	-	-
Subtotal		382,400	-	-	27,724,000	35,425,536
Year 10	Building 1	-	-	-	-	-
	Building 2	-	-	-	-	-
	Building 3	-	-	-	-	-
	Building 4	-	-	-	-	-
	Building 5	-	-	-	-	-
	Building 6	-	-	-	-	-
Subtotal		-	-	-	-	-
Year 11	Building 1	-	-	-	-	-
	Building 2	-	-	-	-	-
	Building 3	-	-	-	-	-
	Building 4	-	-	-	-	-
	Building 5	-	-	-	-	-
	Building 6	149,500	-	-	10,838,750	13,849,680
Subtotal		149,500	-	-	10,838,750	13,849,680
TOTAL		987,800	155.60	\$ 17,982,827	\$ 71,615,500	\$ 91,509,792

APPENDIX 1, ASSUMPTIONS:

1. The following information represents the Developer's best estimate and market data as of the date of this report:

<u>Building</u>	<u>Building Square Feet</u>	<u>Land Acres</u>
Building 1	8,500	
Building 2	20,000	
Building 3	45,000	
Building 4	382,400	
Building 5	382,400	
Building 6	149,500	
Total	987,800	155.6

Source: Development acreage, buildout schedule, and square footage data from Developer.

<u>Land Use</u>	<u>Land Use Code</u>	<u>Land Value/Acre</u>	<u>Improv. Value/Sq.Ft.</u>
Industrial	500/510	\$ 115,571	\$ 72.50

Land and improvement value information from actual taxable values for similar land uses in the City of Fernley, data from Lyon County Assessor's website for FY 2023-24. The analysis is conservative in not inflating these values over the analysis period.

2. Building Permit Valuation is estimated at \$ 92.64 per square foot for industrial uses.
Source: International Code Council, Building Valuation Data – August 2020 as posted on the City of Fernley Building Department Document Center. Data for Factory and Industrial, IIIA building type.

**APPENDIX 2
CITY OF FERNLEY
ESTIMATED GENERAL FUND REVENUE**

<u>YEAR</u>	<u>LAND USE</u>	<u>TOTAL TAXABLE VALUE</u>	<u>CUMULATIVE TOTAL TAX VALUE</u>	<u>BUILDING PERMIT VALUATION</u>	<u>REAL PROP. TAX REVENUE</u>	<u>BUILD. PERMIT & PLAN CHECK REVENUE</u>	<u>TOTAL REVENUE</u>
Year 1	Industrial	\$ 18,599,077	\$ 18,599,077	\$ 787,440	\$ 43,843	\$ 7,779	\$ 51,621
Year 2	Industrial	-	18,599,077	-	43,843	-	43,843
Year 3	Industrial	1,450,000	20,049,077	1,852,800	47,261	14,031	61,291
Year 4	Industrial	-	20,049,077	-	47,261	-	47,261
Year 5	Industrial	3,262,500	23,311,577	4,168,800	54,951	26,374	81,325
Year 6	Industrial	-	23,311,577	-	54,951	-	54,951
Year 7	Industrial	27,724,000	51,035,577	35,425,536	120,304	192,957	313,260
Year 8	Industrial	-	51,035,577	-	120,304	-	120,304
Year 9	Industrial	27,724,000	78,759,577	35,425,536	185,656	192,957	378,613
Year 10	Industrial	-	78,759,577	-	185,656	-	185,656
Year 11	Industrial	10,838,750	89,598,327	13,849,680	211,206	77,968	289,174
Year 12	Industrial	-	89,598,327	-	211,206	-	211,206
Year 13	Industrial	-	89,598,327	-	211,206	-	211,206
Year 14	Industrial	-	89,598,327	-	211,206	-	211,206
Year 15	Industrial	-	89,598,327	-	211,206	-	211,206
Year 16	Industrial	-	89,598,327	-	211,206	-	211,206
Year 17	Industrial	-	89,598,327	-	211,206	-	211,206
Year 18	Industrial	-	89,598,327	-	211,206	-	211,206
Year 19	Industrial	-	89,598,327	-	211,206	-	211,206
Year 20	Industrial	-	89,598,327	-	211,206	-	211,206
Year 21	Industrial	-	89,598,327	-	211,206	-	211,206
Year 22	Industrial	-	89,598,327	-	211,206	-	211,206
Year 23	Industrial	-	89,598,327	-	211,206	-	211,206
Year 24	Industrial	-	89,598,327	-	211,206	-	211,206
Year 25	Industrial	-	89,598,327	-	211,206	-	211,206
Year 26	Industrial	-	89,598,327	-	211,206	-	211,206
Year 27	Industrial	-	89,598,327	-	211,206	-	211,206
Year 28	Industrial	-	89,598,327	-	211,206	-	211,206

**APPENDIX 2
CITY OF FERNLEY
ESTIMATED GENERAL FUND REVENUE**

<u>YEAR</u>	<u>LAND USE</u>	<u>TOTAL TAXABLE VALUE</u>	<u>CUMULATIVE TOTAL TAX VALUE</u>	<u>BUILDING PERMIT VALUATION</u>	<u>REAL PROP. TAX REVENUE</u>	<u>BUILD. PERMIT & PLAN CHECK REVENUE</u>	<u>TOTAL REVENUE</u>
Year 29	Industrial	-	89,598,327	-	211,206	-	211,206
Year 30	Industrial	-	89,598,327	-	211,206	-	211,206
Year 31	Industrial	-	89,598,327	-	211,206	-	211,206
Year 32	Industrial	-	89,598,327	-	211,206	-	211,206
Year 33	Industrial	-	89,598,327	-	211,206	-	211,206
Year 34	Industrial	-	89,598,327	-	211,206	-	211,206
Year 35	Industrial	-	89,598,327	-	211,206	-	211,206
Year 36	Industrial	-	89,598,327	-	211,206	-	211,206
Year 37	Industrial	-	89,598,327	-	211,206	-	211,206
Year 38	Industrial	-	89,598,327	-	211,206	-	211,206
Year 39	Industrial	-	89,598,327	-	211,206	-	211,206
Year 40	Industrial	-	89,598,327	-	211,206	-	211,206
TOTAL		\$ 89,598,327		\$ 91,509,792	\$ 7,240,198	\$ 512,065	\$ 7,752,263

APPENDIX 2, ASSUMPTIONS:

1. Development taxable value and building permit valuation from Appendix 1.
2. City of Fernley FY 20222-23 property tax rate of \$ **0.6735** is assumed to remain unchanged over the analysis period.
3. Property tax calculation: Taxable X 35% = Assessed Value; Assessed Value/100 X Tax Rate = Property Tax Revenue.
4. Analysis assumes a single building permit for each land use in each year. Building permit fee calculation is based on the following rate:

\$ 3,314.59 per first	\$ 500,000	plus	\$ 4.87 for each additional
\$ 1,000 of value.			
\$ 5,748.97 per first	\$ 1,000,000	plus	\$ 3.23 for each additional
\$ 1,000 of value. Source: Building Permit Fee Schedule (BPFS), City of Fernley, June 3, 2020.			
5. Plan Check fee revenue calculated at **65.0%** of building permit revenue.
Source: Building Permit Fee Schedule (BPFS), City of Fernley, June 3, 2020.

APPENDIX 3
CITY OF FERNLEY
COMPARISON OF ESTIMATED GENERAL FUND REVENUES AND EXPENDITURES

<u>YEAR</u>	<u>LAND USE</u>	<u>CUMULATIVE # OF ACRES</u>	<u>ESTIMATED GEN. FUND REVENUE</u>	<u>ESTIMATED GEN. FUND COSTS</u>	<u>ROADS REPLACEMENT COSTS</u>	<u>ESTIMATED REVENUE SURPLUS</u>
Year 1	Industrial	155.60	\$ 51,621	\$ 25,207	\$ -	\$ 26,414
Year 2	Industrial	155.60	43,843	25,207	-	18,635
Year 3	Industrial	155.60	61,291	25,207	-	36,084
Year 4	Industrial	155.60	47,261	25,207	-	22,053
Year 5	Industrial	155.60	81,325	25,207	-	56,118
Year 6	Industrial	155.60	54,951	25,207	-	29,744
Year 7	Industrial	155.60	313,260	25,207	-	288,053
Year 8	Industrial	155.60	120,304	25,207	-	95,096
Year 9	Industrial	155.60	378,613	25,207	-	353,406
Year 10	Industrial	155.60	185,656	25,207	-	160,449
Year 11	Industrial	155.60	289,174	25,207	-	263,967
Year 12	Industrial	155.60	211,206	25,207	127,676	58,323
Year 13	Industrial	155.60	211,206	25,207	127,676	58,323
Year 14	Industrial	155.60	211,206	25,207	127,676	58,323
Year 15	Industrial	155.60	211,206	25,207	127,676	58,323
Year 16	Industrial	155.60	211,206	25,207	127,676	58,323
Year 17	Industrial	155.60	211,206	25,207	127,676	58,323
Year 18	Industrial	155.60	211,206	25,207	127,676	58,323
Year 19	Industrial	155.60	211,206	25,207	127,676	58,323
Year 20	Industrial	155.60	211,206	25,207	127,676	58,323
Year 21	Industrial	155.60	211,206	25,207	127,676	58,323
Year 22	Industrial	155.60	211,206	25,207	127,676	58,323
Year 23	Industrial	155.60	211,206	25,207	127,676	58,323
Year 24	Industrial	155.60	211,206	25,207	127,676	58,323
Year 25	Industrial	155.60	211,206	25,207	127,676	58,323
Year 26	Industrial	155.60	211,206	25,207	127,676	58,323
Year 27	Industrial	155.60	211,206	25,207	127,676	58,323
Year 28	Industrial	155.60	211,206	25,207	127,676	58,323
Year 29	Industrial	155.60	211,206	25,207	127,676	58,323

**APPENDIX 3
CITY OF FERNLEY
COMPARISON OF ESTIMATED GENERAL FUND REVENUES AND EXPENDITURES**

<u>YEAR</u>	<u>LAND USE</u>	<u>CUMULATIVE # OF ACRES</u>	<u>ESTIMATED GEN. FUND REVENUE</u>	<u>ESTIMATED GEN. FUND COSTS</u>	<u>ROADS REPLACEMENT COSTS</u>	<u>ESTIMATED REVENUE SURPLUS</u>
Year 30	Industrial	155.60	211,206	25,207	127,676	58,323
Year 31	Industrial	155.60	211,206	25,207	127,676	58,323
Year 32	Industrial	155.60	211,206	25,207	127,676	58,323
Year 33	Industrial	155.60	211,206	25,207	127,676	58,323
Year 34	Industrial	155.60	211,206	25,207	127,676	58,323
Year 35	Industrial	155.60	211,206	25,207	127,676	58,323
Year 36	Industrial	155.60	211,206	25,207	127,676	58,323
Year 37	Industrial	155.60	211,206	25,207	127,676	58,323
Year 38	Industrial	155.60	211,206	25,207	127,676	58,323
Year 39	Industrial	155.60	211,206	25,207	127,676	58,323
Year 40	Industrial	155.60	211,206	25,207	127,676	58,323
TOTAL			\$ 7,752,263	\$ 1,008,288	\$ 3,702,600	\$ 3,041,375

APPENDIX 3, ASSUMPTIONS:

- Number of developed acres shown in Appendix 1.
- The project is estimated to add **217,800** square feet of roadways to the City's inventory.
Source: Project developers.
- Revenue estimated in Appendix 2.
- General Fund costs estimated at **\$ 162.00** per acre of developed space. Source: Development Fiscal Impact Analysis Tool Methodology and Instructions, Verdunity, July 2021. No inflation factors are included.
- Road maintenance costs, according to the Verdunity report, are included in above General Fund cost estimates. Costs for road replacement are not provided in Verdunity report and are estimated using City of Sparks costs of **\$ 8.50** per square foot occurring every 20 years. At the end of the 40-year analysis period, infrastructure replacement costs are estimated at **\$ 3,702,600** Road Replacement Costs show total replacement cost divided by 29 years of analysis and shown in every year of the analysis following project buildout.
- Estimated Revenue Surplus=Estimated General Fund Revenue-Estimated General Fund Costs-Road Replacement Costs.



CITY OF FERNLEY

Planning Commission AGENDA REPORT

Meeting Date: October 11, 2023

REPORT TO: Fernley Planning Commission

REPORT FROM: Shay League

FINANCIAL IMPACT:

Yes: No: X

CURRENTLY BUDGETED:

Yes: No: X

FUND/ACCOUNT:

N/A

ACTION REQUESTED: Motion

AGENDA ITEM:

(For possible action) Discussion and possible action on a Conditional Use Permit application (CUP23006) submitted by City of Fernley in relation to the planned Community Response and Resource Center (known as the CRRC) to allow a building height maximum greater than 30 feet and to permit "Public Event Space" as a conditional use in the Public Facility (PF) zone at approximately 675 and 695 East Main Street (APNs: 021-103-18 and 021-103-57).

AGENDA ITEM BRIEF:

This is associated with the first phase of the CRRC. The CRRC itself does not need a conditional use permit; however, the center does need a permit to have a building 40' high (as currently designed). The property also requires a conditional use permit in order for the grounds to be used as a public event space.

RECOMMENDED MOTION:

Approval

"I move to approve the conditional use permit associated with CUP23006, subject to conditions of approval 1 through 21 as presented by staff. I further move to adopt findings CU1 through CU6, and the facts supporting these findings, as set forth in the staff report."

BUSINESS IMPACT (per NRS Chapter 237):

A Business Impact Statement is not required because this is not a rule (term excludes vehicles by which legislative powers are exercised under NRS Chapters 271, 278, 278A, or 278B).

See attached report for background, analysis, alternatives.

ALTERNATIVES:

Denial

"Based on information received in written materials and at the public hearing on this matter, I move to deny the conditional use permit associated with CUP23006 because I am unable to make the following required conditional use permit findings:"

"I am unable to make finding _____ as it relates to _____.*" (Repeat for each applicable finding).*

Note: Though no further language has been provided, all motions consistent with City of Fernley Planning Commission parliamentary procedure are appropriate.

BACKGROUND:

This center is the culmination of efforts from Fernley Community Foundation, Boys & Girls Club of Truckee Meadows, City of Fernley, TSK Architects, Cumming Group, CORE Construction, a generous outpouring of community support, and the donations and time of so many of our citizens that listing them here would be a huge undertaking.

Below are project goals of the CRRC, as listed by the Fernley Community Foundation.

- Building Community
- Improving Community Emergency Support
- Increasing Childcare Capacity & Youth Involvement

With that in mind, the first phase of this project is slated to be the future home of the Boys & Girls Club during operating hours, a space for community events after hours, and a rallying point for response coordination during times of emergency. Future phases are planned to include a community gymnasium, Pre-K childcare, and Polaris Plaza (an outdoor event center to include cosmetic improvements on Main Street). As mentioned in the agenda brief, the CRRC itself does not require a conditional use permit. The hope of this application is to obtain a conditional use permit for the maximum building height on these parcels to be increased from 30' to 40' and approval of the intended "public event space" use.

FINDINGS:

CU1. The proposed conditional use will be in compliance with the master plan.

The master planned land use for this parcel is Public Facility (PF). This land use is intended for public buildings and the only equivalent zoning district is Public Facility (PF). Regarding the building height, Fernley Municipal Code Section 32.06.120 for the Public Facility zone expressly allows buildings height to be increased beyond the 30' recommended maximum with approval of a conditional use permit.

Regarding the planned use as a "public event space", Staff has determined the proposed use is materially similar to "event center", which is a permitted use in the public facility zone, and therefore compliant with the master plan. Event center is the closest use defined in our use table; unfortunately, it only applies to places where private functions may be held. As a public event space, this site contains kitchen facilities for the preparation or catering of food, an outdoor garden or reception facility (the event lawn), and is expected to include the sale of alcoholic beverages for on-premises consumption (only during scheduled public events and not in the course of normal operations). The only difference between "public event space" and "event center" is that the public event space intends to host functions for public attendance, instead of private events only. Fernley Municipal Code, Section 32.06.150 states that because it is impossible to contemplate every possible use that may arise in a City, a conditional use permit may be granted for uses that are not listed but are materially similar to a use already permitted in the zone.

In addition to being compliant with the assigned land use, this project as a whole supports several goals and action strategies from the City of Fernley Comprehensive Master Plan. Most notably, this project encourages the preservation of a significant cultural and historical resource by reimagining it. The Fernley and Lassen Railway Depot, one of only two nationally registered historic places in Fernley, will be able to continue serving Fernley residents well into the future.

CU2. The conditional use will be compatible with the existing or permitted uses of adjacent properties.

This project is consistent and compatible with current and future land uses on adjacent properties. Those specific uses for adjacent properties are listed below.

Direction	Zone	Land Use Designation	Current Use
North	C2 (General Commercial)	OSP (Open Space and Parks)	Park
South	MF30 (Residential, Multi-Family, 30 dwelling units per acre maximum)	MFR (Multi-Family Residential)	Apartments
East	C1 (Neighborhood Commercial)	MR (Mixed Residential)	Single-Family Housing
West	C2 (General Commercial)	SMU (Suburban Mixed Use)	Mobile Home Park

The land use plan for this area trends toward denser development than currently exists here, and a community center fits well within that context. Regarding the current neighboring residential uses to the east and west, Staff and the design team have taken great care to reduce as many impacts as possible.

CU3. The potential impairment of natural resources and the total population which the available natural resources will support without unreasonable impairment.

The primary natural resource present at this site is the land itself. Because this parcel is located within our existing infrastructure network, Staff does not feel it would be appropriate for conservation efforts. Land conservation efforts are best directed toward outlying areas within our city limits where there is no existing infrastructure.

CU4. The availability of and need for affordable housing in the community, including affordable housing that is accessible to persons with disabilities.

This project does not address the need for accessible affordable housing in the community; however, it does address related community needs for child care and an emergency response gathering point.

CU5. The conditional use permits impacts have been conditioned to address the identified impacts.

The impact staff identified regarding building height is the possibility of reduced privacy for the surrounding single-family neighborhood. This item did not need to be conditioned, because TSK Architects directly addressed this issue through their design process. On the eastern and western facades of the building, the windows located on the taller portion of the structure are at the very top of a one-story area. These windows are meant to allow natural light to enter the facility without providing a view that looks out at the neighborhood from above. Staff is satisfied that the windows as designed will not reduce the privacy of the surrounding residential neighbors. To ensure that deviation from the one-story elevation provided does not occur without Planning Commission input and a public hearing, staff conditioned buildings greater than 30

feet tall to be single-story only. Should City of Fernley decide in the future to build a two-story or three-story building taller than the 30' allowed in this zone, they would need to apply for a conditional use permit amendment. To be clear, only a single story is intended; however, staff included an extra protection because our citizens are often concerned about maintaining privacy when situated next to taller buildings.

The primary impact staff identified regarding the requested use of a public event space is noise. To address the noise issue, staff has conditioned this project to cease all noise generating activity (such as use of public address systems) by 10 PM and end all events by 11 PM. Staff also expects neighbors to be concerned regarding parking and traffic. This item has been conditioned to make improvements to Lois Lane. The project design team has also opted to include many more parking spaces than our code requires.

CU6. Public notice has been given and a public hearing held per the requirements of the Fernley Municipal Code (FMC) Development Code and Nevada Revised Statutes (NRS).

Staff certifies that public notice was given in accordance with the requirements of FMC Development Code and NRS and a public hearing will be held during the 10/11/2023 Planning Commission meeting.

RELEVANT LAWS, STATUTES, AND REGULATIONS:

General:

[Nevada Revised Statutes \(NRS\), Chapter 278](#) - Planning and Zoning
[Fernley Municipal Code \(FMC\), Title 32](#) - Development Code

Specific

[NRS 278.315](#) - Granting of ... conditional use permits
[FMC Section 32.03.050](#) (b) - Conditional use permits
[FMC Section 32.06.120](#) - Zoning Districts, Public facility (PF)
[FMC Section 32.06.150](#) - Unlisted uses and use table
[FMC Chapter 32.09](#) - Use standards

Note: This list and links for relevant laws, statutes, and regulations is intended for convenient reference and is not all-inclusive. Planning Department will ensure all links are active and relevant until the October 11, 2023 Planning Commission meeting, but does not guarantee the links will remain accurate or relevant after that date.

FINANCIAL IMPLICATIONS:

N/A

AUTHORSHIP NOTE:

All color elevation renderings attached to this report were prepared by TSK Architects.

ATTACHMENTS:

1. CUP23005 Conditions of Approval
2. Vicinity Map
3. Southeast Elevation
4. Southwest Elevation
5. Front Elevation
6. Site Plan
7. Detailed Site Plan

Conditions of Approval for CUP23005

CONDITIONAL USE PERMIT

SCOPE AND DURATION OF APPROVAL

1. **APPROVAL**

THIS CONDITIONAL USE PERMIT IS APPROVED AS SUBMITTED AND CONDITIONED. ANY SUBSTANTIVE CHANGES SHALL REQUIRE REVIEW AND APPROVAL BY PLANNING COMMISSION AS AN AMENDMENT TO THE CONDITIONAL USE PERMIT.

2. **PROJECT DESCRIPTION**

THE PROJECT APPROVAL IS LIMITED TO A COMMUNITY RESOURCE AND RESPONSE CENTER ON TWO PARCELS ±6.23-ACRES IN SIZE AND APPROXIMATELY LOCATED AT 675 AND 695 MAIN STREET, FERNLEY, NV (APNS: 021-103-18 AND 021-103-57).

3. **EXPIRATION DATE**

THE CONDITIONAL USE PERMIT SHALL EXPIRE WITHIN ONE YEAR OF THE DATE OF APPROVAL, UNLESS THE PERMITTED USE HAS BEEN ESTABLISHED OR CONSTRUCTION TO ACCOMMODATE THAT USE HAS BEGUN AND IS BEING DILIGENTLY PURSUED. A ONE-YEAR EXTENSION MAY BE GRANTED BY THE PLANNING COMMISSION IF REQUESTED PRIOR TO THE EXPIRATION DATE OF THE CONDITIONAL USE PERMIT.

4. **PUBLIC EVENT SPACE USE**

AS ALLOWED BY FMC SECTION 32.06.150(B), THE "PUBLIC EVENT SPACE" USE IS HEREBY GRANTED FOR APN: 021-103-57, DUE TO BEING MATERIALLY SIMILAR TO THE "EVENT SPACE" USE, WHICH IS PERMITTED IN THE PUBLIC FACILITY ZONE. THIS USE IS UNDERSTOOD TO INCLUDE ACCOMMODATION OF PUBLIC AND PRIVATE FUNCTIONS AND MAY INCLUDE KITCHEN FACILITIES FOR THE PREPARATION OF CATERING OR FOOD, THE SALE OF ALCOHOLIC BEVERAGES FOR ON-PREMISES CONSUMPTION DURING SCHEDULED EVENTS, OUTDOOR GARDENS, AN OUTDOOR EVENT LAWN, AND RELATED FACILITIES.

THE "PUBLIC EVENT SPACE" USE IS ALSO HEREBY GRANTED FOR APN: 021-103-18, FOR A PERIOD NOT TO EXCEED TWO YEARS. IF THE DEVELOPER COMPLETES A REVERSION TO ACREAGE WITHIN THAT TIME, BOTH PORTIONS OF THE RESULTANT PARCEL SHALL RETAIN "PUBLIC EVENT SPACE" AS A CONDITIONAL USE. SHOULD THE DEVELOPER NOT COMPLETE A REVERSION TO ACREAGE WITHIN TWO YEARS' TIME, THE "PUBLIC EVENT SPACE" USE MAY NOT CONTINUE ON APN: 021-103-18.

PUBLIC EVENTS MAY NOT BEGIN BEFORE 8 AM MONDAY THROUGH FRIDAY OR 9 AM ON SATURDAY AND SUNDAY. FOR EVENTS ON FRIDAY AND SATURDAY, ALL OUTSIDE NOISE GENERATION (SUCH AS THE USE OF PUBLIC ADDRESS SYSTEMS OR AMPLIFICATION OF LIVE MUSIC) SHALL CEASE AT 10 PM AND ALL PUBLIC EVENTS SHALL DISPERSE BY 11 PM. FOR EVENTS NOT HELD ON FRIDAY OR SATURDAY, ALL OUTSIDE NOISE GENERATION SHALL CEASE AT 8 PM AND ALL PUBLIC EVENTS SHALL DISPERSE BY 9 PM.

Conditions of Approval for CUP23005

CONDITIONAL USE PERMIT

5. GOVERNING DOCUMENTS

ALL CITY OF FERNLEY MUNICIPAL CODE (FMC) OR DEVELOPMENT CODE REFERENCES HEREIN PERTAIN TO THE VERSION OF THE CODE ESTABLISHED BY ORDINANCE NUMBER 2020-005, UNLESS OTHERWISE NOTED. THE DEVELOPER MAY SUBSTITUTE REQUIREMENTS ESTABLISHED IN FUTURE CITY OF FERNLEY MUNICIPAL CODE UPDATES, IF APPROVED BY THE ADMINISTRATOR.

THE DEVELOPER SHALL ALSO COMPLY WITH ALL STANDARDS FOUND WITHIN "CITY OF FERNLEY DEPARTMENT OF PUBLIC WORKS DESIGN STANDARDS & REVIEW GUIDELINES" OF MAY 2008, "CITY OF FERNLEY STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION" OF JULY 15, 2008, AND "CITY OF FERNLEY COMPREHENSIVE MASTER PLAN" OF AUGUST 2018.

DESIGN STANDARDS

6. BUILDING HEIGHT

AS ALLOWED BY FMC SECTION 32.06.140, THIS CONDITIONAL USE PERMIT APPROVES A MAXIMUM HEIGHT OF 40 FEET FOR APN: 021-103-57. THIS APPROVAL WILL ALSO APPLY TO BUILDINGS CONSTRUCTED ON APN: 021-103-18, IF THE DEVELOPER COMPLETES A REVERSION TO ACREAGE WITHIN TWO YEARS OF THIS APPROVAL. BUILDINGS THAT EXCEED THE 30 FEET SUGGESTED IN FMC ARE LIMITED TO ONE-STORY CONSTRUCTION.

7. GENERAL DEVELOPMENT STANDARDS

THIS PROJECT SHALL COMPLY WITH ALL DEVELOPMENT STANDARDS FOUND WITHIN THE GOVERNING DOCUMENTS LISTED IN ITEM 5; THIS INCLUDES ITEMS RELATED TO FENCES/WALLS/HEDGES, INTENSITY STANDARDS, LANDSCAPING AND SCREENING, LIGHTING, BUILDING PROJECTIONS, PARKING AND LOADING, AND ANY DEVELOPMENT STANDARDS REQUIRED FOR THE PUBLIC FACILITY ZONE, THE CHILD CARE USE, AND/OR THE EVENT CENTER USE.

GRADING AND CIVIL PERMIT CONDITIONS

8. GEOTECHNICAL REPORT

THE DEVELOPER SHALL PROVIDE A FINAL GEOTECHNICAL REPORT FOR THE PROJECT IN CONFORMANCE WITH THE REQUIREMENTS OF THE DEVELOPMENT CODE FOR REVIEW AND APPROVAL BY THE CITY ENGINEER PRIOR TO ISSUE OF A GRADING PERMIT OR BUILDING PERMIT.

9. GRADING PERMIT

THE DEVELOPER SHALL COMPLY WITH ALL GRADING REQUIREMENTS SET FORTH IN THE CITY OF FERNLEY DEVELOPMENT CODE, AS WELL AS ALL STATE AND FEDERAL REGULATIONS, INCLUDING, BUT NOT LIMITED TO, STORM WATER POLLUTION PREVENTION AND AIR QUALITY.

THE DEVELOPER SHALL PROVIDE VERIFICATION OF A STORM WATER DISCHARGE PERMIT FROM THE NEVADA DEPARTMENT OF ENVIRONMENTAL PROTECTION AS WELL AS A SURFACE AREA DISTURBANCE PERMIT, PRIOR TO ISSUE OF A GRADING PERMIT. THIS REQUIREMENT IS SUBJECT TO APPROVAL OF THE CITY ENGINEER.

Conditions of Approval for CUP23005

CONDITIONAL USE PERMIT

CONSTRUCTION PHASE

10. CONSTRUCTION DEBRIS

ALL CONSTRUCTION SITES SHALL HAVE APPROVED TRASH RECEPTACLE(S) OR AN APPROVED TRASH REMOVAL PLAN IN PLACE AT THE TIME OF THE FIRST INSPECTION AND DURING CONSTRUCTION, UNTIL CERTIFICATE OF OCCUPANCY IS ISSUED. THE RECEPTACLE(S) SHALL BE USED APPROPRIATELY TO MAINTAIN A CLEAN WORK SITE

11. CONSTRUCTION HOURS

PRIOR TO THE START OF ANY CONSTRUCTION-RELATED ACTIVITY, THE DEVELOPER SHALL INSTALL SIGNS AT ALL ACCESS POINTS TO THE PROJECT THAT CLEARLY INDICATE THE HOURS OF ACTIVITY ON-SITE. ALL CONSTRUCTION-RELATED ACTIVITIES SHALL BE LIMITED TO BETWEEN THE HOURS OF 7:00 AM AND 7:00 PM, SEVEN DAYS PER WEEK. ONCE CONSTRUCTION IS FINISHED, THE DEVELOPER SHALL REMOVE THESE SIGNS.

12. PROJECT CONTACT

PRIOR TO ISSUE OF A GRADING PERMIT, THE DEVELOPER SHALL DESIGNATE A PROJECT CONTACT PERSON TO THE ADMINISTRATOR. THE CONTACT PERSON SHALL BE AUTHORIZED TO AND RESPONSIBLE FOR CORRECTING ANY PROJECT-RELATED ISSUES ON A 24-HOUR, 7-DAYS-PER-WEEK BASIS.

BUILDING PERMIT REQUIREMENTS

13. STREET IMPROVEMENTS

THE DEVELOPER SHALL COMPLETE ANY STREET IMPROVEMENTS TO LOIS LANE AND MAIN STREET REQUIRED BY FERNLEY MUNICIPAL CODE PRIOR TO ISSUE OF A BUILDING PERMIT. THIS CONDITION IS SUBJECT TO APPROVAL OF THE ADMINISTRATOR, CITY ENGINEER, AND PUBLIC WORKS DIRECTOR.

14. STORM WATER TREATMENT AND DRAINAGE

THE DEVELOPER SHALL PROVIDE A FINAL DRAINAGE REPORT FOR THE PROJECT IN CONFORMANCE WITH FERNLEY MUNICIPAL CODE AND THE PUBLIC WORKS DESIGN MANUAL FOR REVIEW AND APPROVAL BY THE CITY ENGINEER. THE DEVELOPER SHALL UTILIZE STRUCTURAL CONTROLS FOR THE TREATMENT OF STORM WATER RUNOFF, IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.

PRIOR TO ISSUE OF A BUILDING PERMIT, DRAINAGE CONVEYANCE FACILITIES AND OTHER IMPROVEMENTS SHALL BE CONSTRUCTED. DESIGN AND CONSTRUCTION OF ALL DRAINAGE CONVEYANCE FACILITIES IS SUBJECT TO APPROVAL OF THE ADMINISTRATOR, CITY ENGINEER, AND PUBLIC WORKS DIRECTOR.

15. WATER RIGHTS

PRIOR TO ISSUE OF A BUILDING PERMIT, AND IN ORDER TO BE SERVED BY THE CITY'S MUNICIPAL WATER SYSTEM, THE DEVELOPER SHALL DEDICATE THE APPROPRIATE AMOUNT OF WATER RIGHTS, AS CALCULATED BY THE CITY ENGINEER. SHOULD THE PROJECT BE CONSTRUCTED IN PHASES, THESE REQUIREMENTS MAY BE CALCULATED ON A PER-PHASE BASIS. FULFILLMENT OF THIS REQUIREMENT IS SUBJECT TO APPROVAL OF THE CITY ENGINEER AND PUBLIC WORKS DIRECTOR.

Conditions of Approval for CUP23005

CONDITIONAL USE PERMIT

16. POSTAL SERVICE

PRIOR TO ISSUE OF A BUILDING PERMIT, THE DEVELOPER SHALL COMPLY WITH ALL REQUIREMENTS OF THE UNITED STATES POSTAL SERVICE FOR MAIL DELIVERY, MAILBOX DESIGN, AND MAILBOX LOCATION. THIS REQUIREMENTS IS SUBJECT TO APPROVAL OF THE ADMINISTRATOR, CITY ENGINEER, FERNLEY POSTMASTER, AND PUBLIC WORKS DIRECTOR.

17. WATER AND SEWER SYSTEM MODELING

PRIOR TO ISSUE OF A BUILDING PERMIT, THE DEVELOPER SHALL COMPLETE WATER AND SEWER MODELING AND CONSTRUCT ANY IMPROVEMENTS IDENTIFIED AS NECESSARY TO SERVE THE PROJECT IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. THIS REQUIREMENT IS SUBJECT TO APPROVAL OF THE CITY ENGINEER AND PUBLIC WORKS DIRECTOR.

18. WATER SYSTEM LOOPING

PRIOR TO ISSUE OF A BUILDING PERMIT, THE DEVELOPER SHALL PROVIDE THE CITY WITH A UTILITY PLAN FOR THE WATER SYSTEM THAT DEMONSTRATES ADEQUATE SYSTEM LOOPING. THE PLAN SHALL BE IN CONFORMANCE WITH THE CITY OF FERNLEY'S MUNICIPAL CODE, NEVADA ADMINISTRATIVE CODE, AND PUBLIC WORKS DESIGN MANUAL. THIS REQUIREMENT IS SUBJECT TO THE APPROVAL OF THE CITY ENGINEER AND PUBLIC WORKS DIRECTOR.

19. SANITARY SEWER REPORT

PRIOR TO ISSUE OF A BUILDING PERMIT, THE DEVELOPER SHALL PROVIDE A FINAL SANITARY SEWER REPORT FOR THE PROJECT IN CONFORMANCE WITH THE FERNLEY MUNICIPAL CODE AND THE PUBLIC WORKS DESIGN MANUAL FOR REVIEW AND APPROVAL BY THE CITY ENGINEER.

REGULATORY AGENCIES

20. NORTH LYON COUNTY LYON FIRE PROTECTION DISTRICT

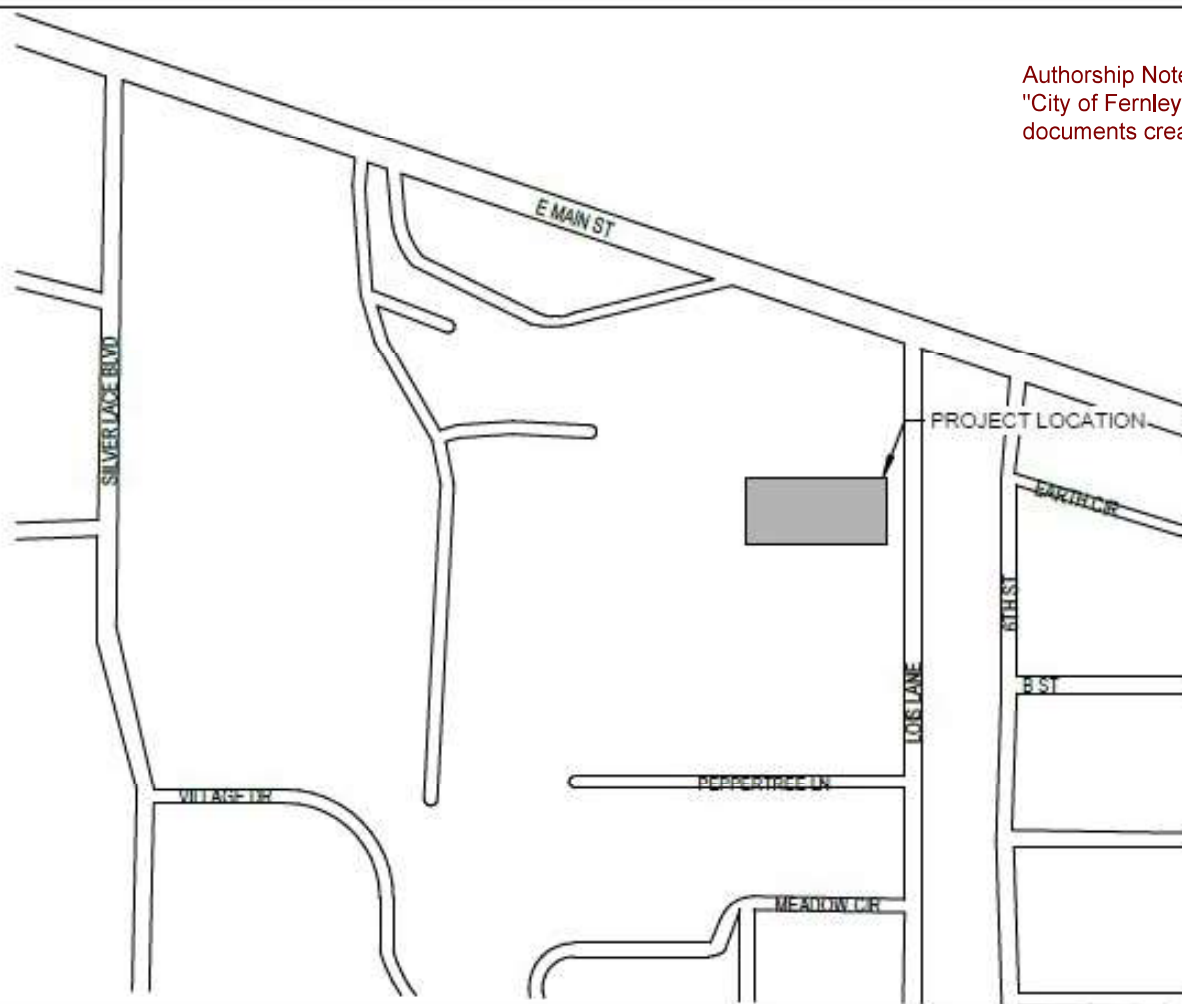
THE DEVELOPER SHALL COMPLY WITH ALL REQUIREMENTS OF THE MOST RECENT FIRE CODE ADOPTED BY THE NORTH LYON COUNTY FIRE PROTECTION DISTRICT, TO THE APPROVAL OF THE FIRE CHIEF, FIRE MARSHAL, OR DESIGNEE.

21. FEDERAL, STATE, AND LOCAL AGENCIES

THE DEVELOPER SHALL COMPLY WITH ALL REQUIREMENTS OF ANY FEDERAL, STATE, LOCAL AGENCY, DEPARTMENT, OR LICENSED PROFESSIONAL WITH JURISDICTION OVER THE PROJECT INCLUDING, BUT NOT LIMITED TO: BUREAU OF RECLAMATION (BOR), NEVADA DEPARTMENT OF TRANSPORTATION (NDOT), NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP), NEVADA DIVISION OF WATER RESOURCES (NDWR), NEVADA BUREAU OF WATER POLLUTION CONTROL, NEVADA BUREAU OF SAFE DRINKING WATER, NEVADA STATE ENVIRONMENTAL COMMISSION, TRUCKEE CARSON IRRIGATION DISTRICT (TCID), THE CITY OF FERNLEY BUILDING OFFICIAL, THE CITY OF FERNLEY ENGINEER, CITY OF FERNLEY PLANNING DEPARTMENT, CITY OF FERNLEY PUBLIC WORKS DEPARTMENT, AND THE CITY OF FERNLEY PROFESSIONAL LAND SURVEYOR.

VICINITY MAP

Authorship Note: Map is excerpted from the "City of Fernley CRRC" 100% construction documents created by TSK Architects.

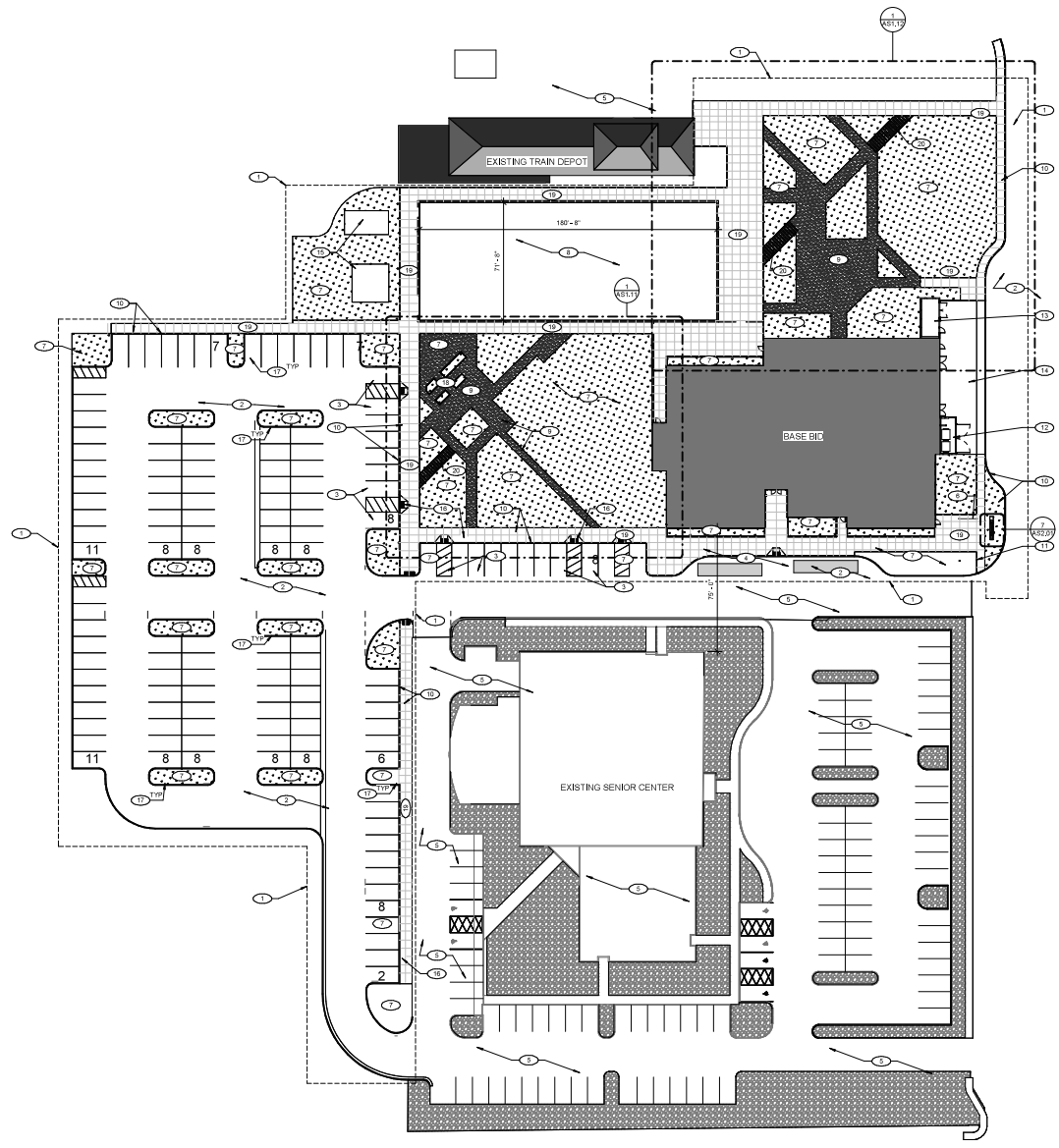




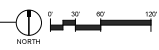
FERNLEY COMMUNITY
RESOURCE AND
RESPONSE CENTER







1 OVERALL SITE PLAN - BASE BID
SCALE: 1"=30'-0"



CITY OF FERNLEY CODE OF ORDINANCES 32.09.120 PARKING & LOADING			
LOCATION	USE PER TABLE 32.09.120-2 PARKING RATIOS	PARKING SPACES REQUIRED	PARKING SPACES PROVIDED
BASE BID	CHILD CARE FACILITY 1050 SF RECREATION FACILITY 1050 SF	40 21	112
TOTAL NUMBER OF PARKING SPACES		61	112
ACCESSIBLE PARKING SPACES		3 + 1 VAN	7 + 1 VAN

NOTE: AN ADDITIONAL 20 SPACES (2 ADA) SHOWN CONSTRUCTED FOR USE BY THE SENIOR CENTER.

GENERAL NOTES	
1	CONTRACTOR TO VERIFY DIMENSIONS IN FIELD PRIOR TO THE COMMENCEMENT OF ANY SITE WORK. DO NOT SCALE DRAWINGS.
2	REFER TO LANDSCAPE DRAWINGS FOR LANDSCAPE INFORMATION.
3	REFER TO CUL. DRAWINGS FOR CURB DIMENSIONS.
4	REFER TO ARCHITECTURAL DRAWINGS FOR PARKING DIMENSIONS AND STREET DIMENSIONS.
5	SEE ENLARGED SITE PLANS FOR ALL SITE PLAN KEYNOTES.
6	ALL CONCRETE SIDEWALK CONTROL JOINTS @ 20' UNLESS DIMENSIONED OTHERWISE.

KEYNOTES	
1	UNITS OF WORK
2	ASPHALT PAVING, SEE SITE & CIVIL DWGS
3	ADA PARKING, SEE SITE & CIVIL DWGS
4	DROP OFF LAINE, SEE SITE & CIVIL DWGS
5	NO WORK IN THIS AREA
6	SITE SCAPES ECHO B&B BACK
7	LANDSCAPING, SEE SITE & LANDSCAPE DWGS
8	PROPOSED EVENT LAWN BY OWNER, STABILIZED DECOMPOSED GRANITE BEDWALK, SEE SITE & CIVIL DWGS
9	CONCRETE CURB & SIDEWALK, SEE SITE & CIVIL DWGS
10	MONUMENTAL SIGN, SEE KUBUSLXX
11	TRASH ENCLOSURE, SEE FLOOR PLAN DWGS
12	ELECTRICAL ENCLOSURE, SEE FLOOR PLAN DWGS
13	CONC. PAD, SEE SITE & LANDSCAPE DWGS
14	ADA PEDESTRIAN RAMP
15	CONC CURB PARKING ISLAND, SEE CIVIL DWGS
16	COMMUNITY GARDEN BY OWNER
17	CONCRETE SIDEWALK, SEE SITE & CIVIL DWGS
18	CONCRETE SIDEWALK W/ EMBEDDED RAILROAD TIES, SEE SITE & CIVIL DWGS

225 South Arlington Avenue
Reno NV 89501
PHONE: 775.857.2949
FAX: 775.857.2403
www.tskn.com

THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF TSK DESIGN GROUP, ARCHITECTS AND MAY NOT BE REPRODUCED OR USED FOR ANY PURPOSE WITHOUT THE ARCHITECT'S WRITTEN CONSENT. AS INSTRUMENTS OF SERVICE, THESE DOCUMENTS ARE NOT FINAL AND READY FOR USE, AND THEREFORE NOT VALID, UNLESS THEY ARE SEALED, SIGNED AND DATED.

Copyright, Ltd 2021

Project
**CITY OF FERNLEY
CRRC**

695 EAST MAIN STREET

Job No: 21-058.00

Owner
CITY OF FERNLEY

100% CONSTRUCTION DOCUMENTS

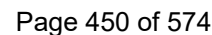
REVISIONS

REV	DATE	DESCRIPTION

Sheet Title
SITE PLAN

Date: JUNE 12, 2023
Sheet No:

AS1.01





CITY OF FERNLEY

Planning Commission AGENDA REPORT

Meeting Date: October 11, 2023

REPORT TO: Fernley Planning Commission

REPORT FROM: Michele Rambo, Planning Director

FINANCIAL IMPACT:

Yes: No: X

CURRENTLY BUDGETED:

Yes: No: X

FUND/ACCOUNT:

N/A

ACTION REQUESTED: Motion

AGENDA ITEM:

(Possible Action) Consideration and possible action to recommend that the City Council conditionally adopt Bill #338, an Ordinance adopting the Victory Logistics District Planned Development (PD23001), including a Change of Zone from Industrial and General Commercial to Planned Development and a development standards handbook. The Planned Development consists of approximately 2,174 acres generally located south of Interstate 80 and east of Nevada Pacific Parkway (APNs 021-201-01 and -16; 021-211-02, -03, -04, and -06; 021-242-11 and -17; 021-251-25; 021-261-43 and -44).

AGENDA ITEM BRIEF:

The property owner, Mark IV Capital, has built several industrial buildings within Fernley near Interstate 80 and Nevada Pacific Parkway. Mark IV Capital has acquired a large part of that area and would like to develop an industrial park. The proposed Planned Development is the first of many steps to make that happen. As part of the proposed Planned Development, a handbook has been developed to standardize development within the industrial park. The ultimate approval of the Planned Development will include both a change in zoning from Industrial and General Commercial to Planned Development and the approval of the associated handbook. Additional approvals will be sought in the coming months for a Development Agreement and a Tentative Subdivision Map.

RECOMMENDED MOTION:

I move to recommend that the City Council conditionally approve Bill #338, creating Phase 1 of Victory Logistics Planned Development (PD223001) to include changing the zoning from Industrial and General Commercial to Planned Development and the approval of the associated handbook as presented based on the findings and conditions of approval outlined in the staff report.

BUSINESS IMPACT (per NRS Chapter 237):

A Business Impact Statement is not required because this is not a rule (term excludes vehicles by which legislative powers are exercised under NRS Chapters 271, 278, 278A, or 278B).

See attached report for background, analysis, alternatives.

ALTERNATIVES:

I move to recommend that the City Council deny Bill #338 on the following grounds: _____

BACKGROUND:

The first phase of Victory Logistics District Planned Development consists of approximately 2,174 acres generally located south of Interstate 80 and east of Nevada Pacific Parkway. The District will consist of mainly industrial uses, but a small amount of commercial is anticipated to be scattered throughout, especially around the Interstate 80/Nevada Pacific Parkway interchange. The existing railroad spur in the southern portion of the development is anticipated to be expanded and used by future buildings.

The Planned Development is envisioned to create a large-scale employment center with an overall positive impact to the local economy by providing jobs to Fernley residents. These jobs will be found through a diverse range of uses extending from distribution warehouses and e-commerce to high end manufacturing and data centers. Commercial uses will be integrated throughout the development to serve residents, employees of the area, and travelers along Interstate 80. The map below shows the extent of the currently proposed Planned Development.



This proposed Planned Development is the first of several approvals that will be needed before the actual development of the area can occur. A Development Agreement is currently being developed between Mark IV Capital and the City of Fernley. This agreement will outline the timing and extent of public improvements to be installed by the Master Developer. It will also provide the city with assurances that public services and infrastructure will be sufficient to protect the health, safety, and welfare of residents as the project grows.

A Tentative Subdivision Map has also been submitted and is currently going through the review process. This map, if approved, will create an industrial subdivision out of the existing lots creating the opportunity to divide the property in a way tailored to individual users through a series of Final Maps. Final Maps will follow to formally create the individual parcels. As the development occurs, additional maps and/or boundary adjustments may be requested based on market needs.

There are several significant issues that needed to be examined as part of this proposal. These include utility infrastructure, increased traffic, and fire protection. Each of these issues have undergone significant study and discussion to determine the best ways to handle the significant increase in need that the project creates while making the improvements more financially feasible for the developer.

Utilities

According to the water study submitted for review, this phase of the Victory Logistics District will use an estimated 7.02 million gallons of water per day. Mark IV Capital controls approximately 2.1 million gallons per day, making the demand on the water system approximately 5 million gallons per day for this project alone. To accommodate this amount of extra use, three new storage tanks will be required by the time the project is built-out, each with a capacity of three million gallons. The construction of these additional tanks has been divided into phases based on how many acres are developed.

1. The existing tank can accommodate the first 342 acres.
2. A new tank would be built after the first 342 acres to accommodate an additional 320 acres.
3. The remaining 1,338 acres would require the addition of two new tanks to be built prior to the remainder of the project.

The City of Fernley Waste Water Treatment Plant currently has a total capacity of 3.05 million gallons per day, with a current average peak flow of 1.7 million gallons per day. The completed Victory Logistics District is anticipated to generate peak flows of 3.9 million gallons per day. At this rate, the treatment plant will need to be expanded and/or upgraded fairly early in the project's development. The existing permit for the treatment plant requires that planning for any expansion begin when the capacity reaches 85 percent or 2.59 million gallons per day. It is estimated that 576 acres of industrial property can be developed before hitting this milestone. As development occurs within the Victory Logistics District, the capacity of the treatment plant will be evaluated closely to determine when expansion planning must begin.

Traffic

The first phase of the Victory Logistics District is anticipated to generate 46,347 average daily trips, a significant percentage of which will be truck traffic. This increase in traffic will have a large impact on the streets within the Planned Development area and throughout the larger area in general. The intersections along US 95A between Interstate 80 and Main Street/US 50A are expected to have increases in traffic substantial enough to warrant intersection improvements to varying degrees.

The biggest street project needed as part of the proposed project is the extension of Nevada Pacific Parkway from its current terminus to the south across the railroad tracks to US 50A. This extension is expected to

reroute a fair amount of truck traffic off of US 95A, potentially freeing up some movement within the traffic circle at US 95A/US 50A. This extension has been awarded federal transportation grant funding and is in the early design phase. According to the traffic study submitted for review the extension will need to be in place before the PM peak hour trip count reaches 1,480 (about 35 percent of project buildout).

The overall results of the traffic study are still under review due to assumptions made by the traffic engineer. Specifically, the assumption that the roundabout at US 95A/US 50A will be converted to a four-way traffic signal. Staff has no indication from NDOT that they ever plan to make this change. With a majority of the traffic study based on this being done, there could be some discrepancy between the study and reality in the future. As part of the Tentative Subdivision Map review, staff will be requesting that the traffic study be done minus the four-way traffic signal option to determine how much of an impact that scenario would be.

Fire

The North Lyon Fire Protection District has two fire stations that serve the City of Fernley. Both of these stations are located south of the Union Pacific Railroad tracks that run through town. With the proposed development being located north of the tracks and access across those tracks being limited, the fire department response times will be stretched to the maximum. Therefore, the Fire Protection District has required that Victory Logistics District include a fire station as part of their development.

Fire stations are relatively expensive to build and Mark IV Capital is burdened with the cost on their own unless other alternatives are found. There are several ideas currently being considered, including reimbursement from future developers who would benefit from the fire station and some sort of improvement district to collect proportional amounts from other property owners in the area. The ultimate decision and details of which will either be included in the Development Agreement or in some other document to be determined at a later point.

ANALYSIS:

In addition to the findings discussed later in this report, the Planned Development needs to show consistency with the City's Comprehensive Master Plan. Staff has determined that the Planned Development is consistent with the following goals and/or policies:

LU 1.1 – Encourage and plan for new development in areas where adequate public services and facilities can be provided efficiently.

The Planned Development is located adjacent to an existing industrial area, which is currently served by public services and facilities. While the size of the Victory Logistics District does impact these public services and facilities to some extent, the Development Handbook and the Development Agreement will incorporate the mitigations to reduce the impact to an acceptable level.

LU 1.3 – Provide a balanced distribution of employment and population.

The proposed Planned Development will provide a substantial amount of jobs for Fernley residents as the development is built-out. This will help even out the ratio of residents to local jobs and improve the quality of life for many.

LU 1.4 – Ensure existing and future land uses are compatible.

As mentioned earlier, the Victory Logistics District is located on the edge of the city adjacent to other industrial uses. The nearest residential uses are located to the south across the US 50A highway. This highway will

provide a buffer between these two land uses suitable for creating compatibility.

T 1.1 – Require that roadway facilities be maintained and constructed as needed to ensure high quality and safe travel on major streets and at major intersections.

All roadways will be improved and maintained as required in the City of Fernley code, the Development Handbook, and/or the Development Agreement. A traffic study was submitted for this project which recommended modifications at several existing intersections and the extension of Nevada Pacific Parkway to US 50A to the south. The project has been conditioned to follow all traffic study recommendations. This will ensure the high quality and safe travel that the Master Plan envisioned.

PSF 3.3 – Ensure appropriate levels of public services and facilities are continually provided.

With the exception of fire department service discussed below, all public services and facilities will be available to serve the Victory Logistics District Planned Development. Therefore, the development is consistent with the Master Plan.

PSF 3.10 – Provide adequate levels of fire protection and response to life safety threats throughout Fernley.

The need for a new fire station has been identified by the North Lyon County Fire Protection District as being critical to providing an adequate level of service for this new development. Once this fire station is complete, the project will be consistent with the Master Plan. The details of the fire station's location, funding, and timing will be included in the forthcoming Development Agreement between Mark IV Capital and the City of Fernley.

PSF 3.11 – Require large-scale developments to be within adequate fire service areas.

As discussed above in PSF 3.10, the North Lyon County Fire Protection District has identified that the Victory Logistics District is not located within an adequate fire service area as the fire department stands today. Therefore, a new fire station located within the Planned Development is needed to ensure that the department can provide adequate services for both fire protection and emergency medical assistance.

FINDINGS:

To approve the Planned Development, the following findings must be met:

PD1

In what respects the plan is or is not consistent with the statement of objectives of a planned unit development.

Section 32.06.140 of the City of Fernley Development Code identifies the purpose of a Planned Development as creating "...flexibility and creativity of design and a greater diversity of building types, open space arrangements and other aspects of land planning, while...preserving public welfare, health, and the general intent of the City of Fernley Master Plan". It also states that Planned Developments "...provide a degree of certainty for the duration of build out of a large tract of land...".

The Victory Logistics District Planned Development is generally consistent with this purpose. Flexibility is built into every aspect of the development to account for changing market trends and the needs of different uses that may move into the area. At the same time, the public welfare, health, and intent of the Master Plan are being taken into consideration through the requirement for open space, street improvements, and future extensions and upgrades of utility infrastructure.

PD2

The extent to which the plan departs from zoning and subdivision regulations, otherwise applicable to the property, including, but not limited to, density, bulk and use, and the reasons why these departures are or are not deemed to be in the public interest.

The proposed Victory Logistics PUD handbook defines uses that mirror the current City of Fernley zoning code zoning designations of C-2 and I. The number of overall uses is limited from what standard city code would allow by Table 2-1 (Allowed Use Table) in the handbook. The Victory Industrial (V-I) land use designation has omitted many of the typically allowed heavier industrial uses under industrial (such as junk yards, outdoor processing, etc.) which was noted to help guide the long-term appearance of the project. Such heavier uses are generally not permitted either by-right nor with a conditional use permit. Development standards for each of the land use area (V-C and V-I) are similar to the code requirements for the General Commercial (C-2) and Industrial (I). Building heights in the V-I designation are allowed to go to 75 feet rather than 65 feet as is presented in code. Both the PUD handbook and the Fernley Code allow for uses taller than the identified development standard height with a conditional use permit review.

The conditional use permit review path is has been defined to have planning commission act as the final decision making body in the absence of an appeal. If an individual project were to be appealed, it would move on to City Council for final approval. This is seen to be reasonable as the project is relatively isolated in the northeast quadrant of the community and any conditional use permit items, mitigation, or sensitivity review would likely not find any significant impact upon the other surrounding industrial uses.

These departures from standard zoning regulations are seen to be reasonable given the overall size and generally isolated nature of the development. Much of the regulation of the handbook looks to help streamline the review process and timeframes for final approval of individual projects, which should help quickly create new jobs within the City and be a benefit to the residents and City of Fernley.

PD3

The ratio of residential to nonresidential use in the planned unit development.

The Victory Logistics District is proposed to be mostly industrial uses with a few scattered areas for commercial development. No residential uses are anticipated as part of the area's development. Therefore, the ratio of residential to nonresidential is 0/100.

PD4

The purpose, location, and amount of the common open space in the planned unit development, the reliability of the proposals for maintenance and conservation of the common open space, and the adequacy or inadequacy of the amount and purpose of the common open space as related to the proposed density and type of residential development.

The proposed Planned Development does not include residential development. The purpose and location of open space within the Victory Logistics District is still under negotiation. The currently proposed changes to Section 32.06.140 (Planned Development) require ten percent of a non-residential Planned Development to be open space. The current plan is to provide this minimum amount of open space. Staff would be amenable to this open space being used for things such as courtyards, seating areas, walking paths, bike paths, or other similar outdoor amenities designed to benefit the employees working in the area. The exact location and types of open space will be discussed in detail in the Development Agreement currently being negotiated between Mark IV Capital and the City of Fernley.

PD5

The physical design of the plan and the manner in which the design does or does not make adequate provision

for public services and utilities, provide adequate control over vehicular traffic, and further the amenities of light, air, recreation, and visual enjoyment.

The nature and size of the Victory Logistics District Planned Development creates several challenges with providing public services and utilities as well as accounting for the significant increase in traffic. For instance, Fire Department response times are too long with current systems in place. Therefore, the Fire Department has required that a fire station be built by Mark IV Capital prior to issuing any certificates of occupancy within the Planned Development boundaries. In addition, the sewage treatment plant does not currently have the capacity to handle the amount of waste that a project of this size would generate. A solution to this problem is currently being negotiated as part of the Development Agreement between Mark IV Capital and the City of Fernley. Finally, the existing roads are not adequate to handle the significant increase in traffic, especially truck traffic, that would be generated. The submitted traffic study identifies several needed improvements, including an extension of Nevada Pacific Parkway south to US 50A, to mitigate this issue and take the pressure off of some of the other surrounding streets. The developer is currently working with NDOT and the Union Pacific Railroad to get their approval for the extension, which will be required to be constructed when the number of trips reaches a certain threshold.

PD6

The relationship, beneficial or adverse, of the proposed planned unit development to the neighborhood in which it is proposed to be established.

The Victory Logistics District Planned Development is located on the edge of an existing industrial portion of the city. The area is zoned for industrial use and is identified for industrial use in the Master Plan. Therefore, there is no adverse relationship to the area.

PD7

In the case of a plan which proposes development over a period of years, the sufficiency of the terms and conditions intended to protect the interests of the public, residents, and owners of the planned unit development in the integrity of the plan.

It is anticipated that the Victory Logistics District will take approximately 20 years to reach full buildout. The studies submitted as part of this project each lay out timelines for what improvements need to be done at what point in development. The Development Agreement will ensure that these improvements are done timely. In addition, the conditions of approval include needed changes to the Development Handbook to ensure that the plan will keep its integrity throughout the buildout period.

RELEVANT LAWS, STATUTES, AND REGULATIONS:

City of Fernley Development Code 32.06.140 (Planned Development)
NRS Chapter 278A (Planned Development)

FINANCIAL IMPLICATIONS:

None

ATTACHMENTS:

1. Bill 338
2. Conditions of Approval

3. PD Handbook

BILL #338
CITY OF FERNLEY
ORDINANCE # _____

AN ORDINANCE CHANGING THE ZONING ON EIGHT LOTS (APNs 021-201-01 AND -16; 021-211-02, AND -03; 021-242-17; 021-251-25; 021-261-43 AND -44) FROM INDUSTRIAL (I) TO PLANNED DEVELOPMENT AND THREE LOTS (APNS 021-211, 04 AND 06; 021-242-11) FROM GENERAL COMMERCIAL (C2) TO PLANNED DEVELOPMENT, AND OTHER MATTERS RELATED THERETO.

THE CITY COUNCIL OF THE CITY OF FERNLEY, hereinafter “the Council”, DO HEREBY ORDAIN:

- Section 1.** The zoning of that certain real property totaling 2,173 acres, more or less, situated in the City of Fernley, Nevada, being more particularly described as APNs 021-201-01 and -16; 021-211-02, -03, -04, and -06; 021-242-11 and -17; 021-251-25; 021-261-43 and -44 depicted on “Exhibit A” attached hereto (consisting of one page) is hereby reclassified from Industrial (I) and General Commercial (C2) to Planned Development (PD).
- Section 2.** The zoning map of the City of Fernley is hereby amended in accordance with the zoning map amendment herein.
- Section 3.** All ordinances or parts of ordinances in conflict herewith are hereby repealed.
- Section 4.** The City Clerk is instructed and authorized to publish the title of this ordinance as provided by law and to record the plan certified herein as provided by law.
- Section 5.** This ordinance shall become effective upon passage, approval, and publication.
- Section 6.** The provisions of this ordinance shall be liberally construed to effectively carry out its purposes in the interest of the public health, safety, welfare, and convenience.
- Section 7.** In any subsection, phrase, sentence, or portion of this ordinance is for any reason held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate, distinct, and independent provision, and such holding shall not affect the validity of the remaining portions.
- Section 8.** The City Council finds that this ordinance is not likely to impose a direct and significant economic burden upon a business or directly restrict the formation, operation, or expansion of a business, or is otherwise exempt from Nevada Revised Statutes Chapter 237.

BILL #338 BEING HEREBY PROPOSED on the ____ day of _____, 2023.

BILL #338 BEING HEREBY PASSED, APPROVED, and ADOPTED this ____ day of _____, 2023, by the following vote of the Council:

Ayes: _____ Nays: _____ Abstentions: _____ Absent: _____

FERNLEY CITY COUNCIL

By: _____
Neal E. McIntyre, Mayor

Date: _____

Attest By: _____
Kim Swanson, City Clerk

Date: _____

Conditions of Approval for PD23001

Planned Development

GENERAL CONDITIONS

1. APPROVAL:

THE PLANNED DEVELOPMENT IS APPROVED AS SUBMITTED AND CONDITIONED. ANY SUBSTANTIVE CHANGE SHALL REQUIRE REVIEW AND APPROVAL AS OUTLINED IN CITY OF FERNLEY DEVELOPMENT CODE SECTION 32.06.140 (PLANNED DEVELOPMENT) OR THE APPROVED HANDBOOK.

2. PROJECT DESCRIPTION:

THE PROJECT APPROVAL IS TO CREATE THE VICTORY LOGISTICS DISTRICT PLANNED DEVELOPMENT, A COMBINATION OF INDUSTRIAL AND COMMERCIAL USES ON APPROXIMATELY 2,174 ACRES GENERALLY LOCATED SOUTH OF INTERSTATE 80 AND EAST OF NEVADA PACIFIC PARKWAY (CURRENT APNS: 021-201-01 and -16; 021-211-02, -03, -04, and -06; 021-242-11 and -17; 021-251-25; 021-261-43 and -44).

3. GOVERNING DOCUMENTS:

ALL CITY OF FERNLEY MUNICIPAL CODE OR DEVELOPMENT CODE REFERENCES HEREIN PERTAIN TO THE VERSION OF THE CODE IN EFFECT AT THE TIME THE HANDBOOK IS RECORDED, UNLESS OTHERWISE NOTED.

THE DEVELOPER SHALL ALSO COMPLY WITH ALL STANDARDS FOUND WITHIN "CITY OF FERNLEY DEPARTMENT OF PUBLIC WORKS DESIGN STANDARDS & REVIEW GUIDELINES" OF MAY 2008, "CITY OF FERNLEY STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION" OF JULY 15, 2008, AND "CITY OF FERNLEY COMPREHENSIVE MASTER PLAN" OF AUGUST 2018 UNLESS OTHERWISE APPROVED IN THE DEVELOPMENT HANDBOOK.

4. ZONE CHANGE:

THE ZONING OF APNS 021-201-01 and -16; 021-211-02, -03, -04, and -06; 021-242-11 and -17; 021-251-25; 021-261-43 and -44 IS HEREBY CHANGED FROM INDUSTRIAL AND COMMERCIAL (C2) TO PLANNED DEVELOPMENT. LAND USES ALLOWED IN THIS AREA ARE SUBJECT TO THE DEVELOPMENT HANDBOOK AND THE MASTER DEVELOPER'S ARCHITECTURAL REVIEW COMMITTEE.

5. NORTH LYON COUNTY FIRE PROTECTION DISTRICT:

PRIOR TO THE FIRST CERTIFICATE OF OCCUPANCY BEING ISSUED, A FIRE STATION SHALL BE CONSTRUCTED AS OUTLINED IN THE REQUIRED DEVELOPMENT AGREEMENT.

6. FEDERAL, STATE, AND LOCAL AGENCIES:

THE DEVELOPER SHALL COMPLY WITH ALL REQUIREMENTS OF ANY FEDERAL, STATE, LOCAL AGENCY, DEPARTMENT, OR LICENSED PROFESSIONAL WITH JURISDICTION OVER THE PROJECT INCLUDING, BUT NOT LIMITED TO: NEVADA DEPARTMENT OF TRANSPORTATION (NDOT), NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP), NEVADA DIVISION OF WATER RESOURCES (NDWR), NEVADA BUREAU OF WATER POLLUTION CONTROL, NEVADA BUREAU OF SAFE DRINKING WATER, NEVADA STATE ENVIRONMENTAL COMMISSION, THE CITY OF FERNLEY BUILDING OFFICIAL, THE CITY OF FERNLEY ENGINEER, CITY OF FERNLEY PLANNING DEPARTMENT, CITY OF FERNLEY PUBLIC WORKS DEPARTMENT, AND THE CITY OF FERNLEY PROFESSIONAL LAND SURVEYOR.

7. DEVELOPMENT AGREEMENT:

THIS DEVELOPMENT WILL BE SUBJECT TO A DEVELOPMENT AGREEMENT BETWEEN MARK IV CAPITAL AND CITY OF FERNLEY, TO BE RECORDED IN LYON COUNTY. IN PLACES WHERE CITY OF FERNLEY MUNICIPAL CODE AND THE DEVELOPMENT AGREEMENT ARE INCONSISTENT, THE DEVELOPMENT AGREEMENT SHALL TAKE PRECEDENCE. IN PLACES WHERE THE HANDBOOK AND THE DEVELOPMENT AGREEMENT ARE INCONSISTENT, THE DEVELOPMENT AGREEMENT SHALL TAKE PRECEDENCE.

Conditions of Approval for PD23001

Planned Development

8. COMPLIANCE WITH STUDIES:

THE RECOMMENDATIONS AND/OR MITIGATION MEASURES OUTLINED IN ALL PROJECT STUDIES (WATER, SEWER, DRAINAGE, TRAFFIC, ETC.) SHALL BE FOLLOWED PER THE TIMELINES IDENTIFIED IN THE STUDY OR THE DEVELOPMENT AGREEMENT.

9. NOT AN APPROVAL FOR CONSTRUCTION:

THE APPROVAL OF THIS PLANNED DEVELOPMENT IS NOT AN APPROVAL FOR CONSTRUCTION, INCLUDING GRADING, UTILITIES, AND/OR INDIVIDUAL BUILDINGS. NO LAND SHALL BE USED OR DIVIDED, AND NO STRUCTURE SHALL BE CONSTRUCTED, OCCUPIED, ENLARGED, ALTERED, MOVED, OR REMOVED UNTIL:

- A. THE DEVELOPMENT AGREEMENT IS APPROVED AND RECORDED,
- B. ALL APPLICABLE DEVELOPMENT REVIEW AND APPROVAL PROCESSES HAVE BEEN FOLLOWED,
- C. ALL APPLICABLE APPROVALS HAVE BEEN OBTAINED, AND
- D. ALL REQUIRED PERMITS AND AUTHORIZATIONS TO PROCEED HAVE BEEN ISSUED.

10. DEVELOPMENT HANDBOOK:

THE DEVELOPMENT HANDBOOK SHALL NOT BE RECORDED OR EFFECTIVE UNTIL THE FOLLOWING MODIFICATIONS ARE MADE.

- A. DELETE OPEN SPACE SECTION AND REVISE TO CONFORM TO THE DEVELOPMENT AGREEMENT.
- B. REMOVE OR MODIFY THE APPROVAL PROCESS FOR TENTATIVE SUBDIVISION MAPS. THE PROCESS SHALL CONFORM WITH CITY OF FERNLEY CODE SECTION 32.03.060 (LAND DIVISION) AND NRS SECTION 278.349, EXCEPT AS OTHERWISE PROVIDED IN THE DEVELOPMENT AGREEMENT.
- C. ADD TO SECTION 3.2.3 TO READ: "COMMERCIAL USES LOCATED WITHIN ONE QUARTER MILE OF INTERSTATE 80 SHALL INCLUDE TRUCK PARKING SPACE(S) WITHIN THEIR PARKING LOTS".
- D. MODIFY SECTION 3.2.7(E) TO READ: "A LOADING AREA SHALL BE PROVIDED FOR EACH COMMERCIAL BUILDING, OR OTHER ACCOMMODATIONS SHALL BE MADE".
- E. MODIFY THE FIRST SENTENCE OF SECTION 1.5.4 STRIKING OUT "UNLESS A CONDITIONAL USE PERMIT IS REQUIRED".
- F. MODIFY THE TITLE OF SECTION 1.4.2 TO SAY: "EFFECTIVE DATE".
- G. SECTION 1.5.7-ADMINISTRATOR REVIEW AND ACTION-MODIFY THE SECOND SENTENCE TO SAY: "AFTER REVIEWS ARE COMPLETE AND THE TENTATIVE MAP HAS BEEN APPROVED, THE ADMINISTRATOR SHALL...".
- H. SECTION 1.2-PARAGRAPH 3: DELETE SECOND AND THIRD SENTENCES AND REPLACE WITH THE FOLLOWING LANGUAGE AND RELEVANT SECTIONS IDENTIFIED: "SPECIFIC RESPONSIBILITIES FOR THE IMPROVEMENT AND MAINTENANCE OF PUBLIC AREAS AND INFRASTRUCTURE ARE FURTHER ADDRESSED IN SECTIONS ____ OF THIS HANDBOOK".
- I. SECTION 1.3.7-PARAGRAPH 2: DELETE THE PHRASE "AND ALL APPLICABLE AFOREMENTIONED CONTROLLING DOCUMENTS" FROM THE LAST SENTENCE. THE CITY CANNOT ENFORCE THE CC&RS.
- J. SECTION 1.3.7-PARAGRAPH 2: DELETE THE LAST SENTENCE AND REPLACE WITH THE LANGUAGE FROM DEVELOPMENT CODE SECTION 32.06.140(H) (PLANNED DEVELOPMENT).
- K. SECTION 1.4.5-FIRST PARAGRAPH: REPLACE THE SECOND SENTENCE WITH THE FOLLOWING: "FURTHERMORE, PURSUANT TO NRS 278.0201, THE ORDINANCES, RESOLUTIONS, OR REGULATIONS APPLICABLE TO VICTORY MPA 1 AND GOVERNING THE PERMITTED USES IN IT, THE DENSITY AND STANDARDS FOR DESIGN, IMPROVEMENTS, AND CONSTRUCTION ON IT ARE THOSE IN EFFECT AT THE TIME OF ADOPTION OF THIS HANDBOOK, EXCEPT AS OTHERWISE PROVIDED IN THE DEVELOPMENT AGREEMENT".
- L. SECTION 1.5.2: THIS SECTION SHALL TRACK THE LANGUAGE IN THE REVISED PLANNED DEVELOPMENT CODE REGARDING MAJOR AND MINOR DEVIATIONS. CLARIFY THAT, PURSUANT TO NRS 278A.570(3), ARCHITECTURAL REVIEW COMMITTEE APPROVAL IS REQUIRED BEFORE AN APPLICATION FOR MAJOR/MINOR DEVIATIONS ARE SUBMITTED TO THE CITY.

Conditions of Approval for PD23001

Planned Development

- M. SECTION 1.5.3: STRIKE THIS SECTION ENTIRELY. THE MAJOR DEVIATION PROCEDURE SHALL REPLACE THE VARIANCE PROCEDURE AS OUTLINED IN SECTION 32.06.140 OF THE DEVELOPMENT CODE.
- N. SECTIONS 1.5.4, 1.5.5, 1.5.6, AND 1.5.7: ADD NUMBERED SUBHEADINGS TO EACH STEP OF THE PROCESS.
- O. CHAPTER 2: MOVE FIGURE 2-1 TO SECTION 2.1.
- P. WHEN REFERENCING THE FERNLEY MUNICIPAL CODE, IDENTIFY THE NAME OF THE SECTION ALONG WITH THE NUMBER.
- Q. ADD MAINTENANCE OF SIGNS TO SECTION 3.2.5 OR STATE THAT THIS IS COVERED BY THE CC&RS.
- R. SECTION 2.3.7(A)-FIRST PARAGRAPH: LANGUAGE IS TOO VAGUE. PROVIDE MORE SPECIFIC LANGUAGE OF LANDSCAPE/IRRIGATION MAINTENANCE STATING THAT THIS MAINTENANCE IS THE RESPONSIBILITY OF THE MASTER DEVELOPER, ARCHITECTURAL REVIEW COMMITTEE, AND/OR INDIVIDUAL PROPERTY OWNERS; NOT THE CITY OF FERNLEY.
- S. SECTION 2.2.3-RAIL: APPLICANT SHALL ADD THE FOLLOWING AFTER THE FIRST SENTENCE: "THE CITY OF FERNLEY WILL NOT BE REQUIRED TO OBTAIN PERMITS FROM THE UPRR TO WORK WITHIN THE PROPOSED PRIVATELY OWNED RAIL EASEMENTS AND SHALL NOT BE REQUIRED TO MAINTAIN RAILROAD LIABILITY INSURANCE WHILE WORKING WITHIN THE PRIVATELY OWNED RAIL EASEMENTS".
- T. SECTION 2.7-STREET LIGHTING: APPLICANT SHALL ADD STREET LIGHTING AT AN INTERVAL OF 750' BETWEEN INTERSECTION AND DRIVEWAYS.
- U. SECTION 2.8-ACCESS TO EXISTING CITY FACILITIES: APPLICANT SHALL ADD THE FOLLOWING SENTENCE TO THE END OF SECTION 2.8: "THE PROPOSED ACCESS ROAD SHALL BE DESIGNED IN COMPLIANCE WITH THE INTERNATIONAL FIRE CODE AND SHALL ACCOMMODATE THE TURNING RADIUS OF APPLICABLE FIRE APPARATUS AND A WB-67 TRUCK. THE GATE SHALL BE AN AUTOMATIC GATE COMPARABLE TO THE EXISTING GATE INSTALLED AT THE FACILITY. THE FINAL ALIGNMENT AND DESIGN OF THE PROPOSED ACCESS ROAD SHALL BE TO THE APPROVAL OF THE PUBLIC WORKS DIRECTOR AND CITY ENGINEER. SHOULD THE PROPOSED ACCESS NOT BE APPROVED, THE EXISTING ACCESS SHALL BE MAINTAINED AT NO COST TO THE CITY OF FERNLEY".
- V. SECTION 4.1.1-DRAINAGE/FLOOD CONTROL: APPLICANT SHALL CORRECT THE NUMBERING OF THE UTILITY SECTIONS STARTING WITH DRAINAGE/FLOOD CONTROL.
- W. SECTION 4.2.1-CONCURRENCY OF INFRASTRUCTURE AND FACILITIES: APPLICANT SHALL CORRECT THE TABLE TO INDICATE THAT ALL BENEFITTED PRIVATE PARTIES TO BE THE CAPITAL FUNDING SOURCE FOR WATER SUPPLY SYSTEM INFRASTRUCTURE AND WASTEWATER TREATMENT CAPACITY.



PUD Handbook Application Submittal – August 15, 2023

Amended for Staff Comments – September 15, 2023

VICTORY LOGISTICS DISTRICT PLANNED UNIT DEVELOPMENT HANDBOOK

Contents

CHAPTER 1	INTRODUCTION AND IMPLEMENTATION	1-1
1.1	Victory Master plan AREA	1-1
1.2	PURPOSE	1-2
1.3	VISION	1-3
1.3.1	Guiding Principles.....	1-3
1.3.2	Efficient Land Use Pattern.....	1-4
1.3.3	Concurrency of Infrastructure and Public Services.....	1-4
1.3.4	CONCURRENCY OF INFRASTRUCTURE AND PUBLIC SERVICES	1-4
1.3.5	Business Diversity.....	1-4
1.3.6	Economic Sustainability	1-4
1.3.7	Implementing the Vision.....	1-5
1.3.8	Victory MPA 1 Envisioned Land Use Pattern	1-5
1.3.9	Open Space	1-8
1.4	Handbook Provisions	1-9
1.4.1	General Provisions	1-9
1.4.2	Severability.....	1-9
1.4.3	Authority	1-9
1.4.4	Severability.....	1-9
1.4.5	Binding Effect of Handbook	1-9
1.4.6	Modifications to Handbook	1-10
1.5	INDIVIDUAL PROJECT APPROVAL PROCESS	1-10
1.5.1	GENERAL PROVISIONS	1-10
1.5.2	Minor and Major Deviations.....	1-11
1.5.3	VARIANCES.....	1-11
1.5.4	ADMINISTRATIVE REVIEW Process	1-12
1.5.5	cONDITIONAL USE PERMIT Process	1-15
1.5.6	TENTATIVE MAP/SUBDIVISION PROCESS.....	1-18
1.5.7	FINAL MAP PROCESS.....	1-22
1.5.8	Temporary Uses	1-24

VICTORY LOGISTICS DISTRICT

PLANNED UNIT DEVELOPMENT HANDBOOK

1.5.9	Accessory/Ancillary Uses	1-24
1.5.10	ADMINISTRATIVE APPROVAL TIMELINES	1-24
CHAPTER 2	USE REGULATIONS AND DEVELOPMENT STANDARDS	2-1
2.1	LAND USE dESIGNATIONS	2-1
2.1.1	General Development Standards	2-2
2.1.2	Permitted and Conditional Uses	2-9
2.1.3	Victory MPA 1 Land Use Specific Definitions	2-10
2.2	Roadway Development Standards	2-18
2.2.1	Access Standards	2-18
2.2.2	Roadways	2-18
2.2.3	Rail	2-22
2.3	Landscape and Irrigation Standards	2-25
2.3.1	Purpose	2-25
2.3.2	Applicability	2-25
2.3.3	Landscape and Irrigation Plans	2-26
2.3.4	General Landscape Standards	2-27
2.3.5	Parking Area Landscaping	2-29
2.3.6	Bonding Requirements	2-29
2.3.7	Maintenance	2-30
2.4	Trash Enclosures and Mechanical/Equipment Screening	2-30
2.4.1	Trash Enclosures	2-30
2.4.2	Mechanical Equipment Screening	2-30
2.5	Walls	2-31
2.6	Maintenance	2-31
2.7	Street Lighting	2-31
2.7.1	Arterials, Collectors, and Local Streets	2-32
2.8	Access to existing city facilities	2-32
CHAPTER 3	DESIGN STANDARDS AND GUIDELINES	3-34
3.1	Purpose and Compliance	3-34
3.2	SITE PLANNING standards and guidelines	3-34
3.2.1	Building Orientation	3-34

VICTORY LOGISTICS DISTRICT

PLANNED UNIT DEVELOPMENT HANDBOOK

3.2.2	Grading and Drainage	3-35
3.2.3	Parking Lots and Parking Lot Entry Drives	3-36
3.2.4	Lighting.....	3-37
3.2.5	Signs	3-38
3.2.6	Walls and Fences.....	3-44
3.2.7	Service and Utility Areas	3-45
3.2.8	Drive-thru Facilities	3-46
3.3	ARCHITECTURE STANDARDS AND guidelines	3-46
3.3.1	Background	3-46
3.3.2	Architectural Theme	3-46
3.3.3	Building Mass and Form.....	3-46
3.3.4	Building Entryways.....	3-48
3.3.5	Roof Form.....	3-49
3.3.6	Materials and Colors	3-49
CHAPTER 4	INFRASTRUCTURE AND PHASING	4-1
4.1	Utilities/Infrastructure	4-1
4.1.1	Open Space and Trails/Paths	4-2
4.1.2	Sanitary Sewer	4-3
4.1.3	Water	4-6
4.1.1	Drainage/Flood CONTROL.....	4-9
4.1.2	Traffic	4-11
4.1.3	Rail.....	4-14
4.1.4	Electricity/Natural Gas	4-16
4.1.5	Police Protection	4-17
4.1.6	Fire Protection.....	4-17
4.2	Overall Phasing.....	4-18
4.2.1	Concurrency of Infrastructure and Facilities.....	4-19

CHAPTER 1 INTRODUCTION AND IMPLEMENTATION

1.1 VICTORY MASTER PLAN AREA

Victory Master Plan Area (MPA) 1 consists of approximately 2,173.46 acres of land, as is part of Mark IV Capital's larger, approximately 4,300-acre project known as the Victory Logistics District. Victory MPA 1 is generally located south of Interstate 80, east of Nevada Pacific Parkway, and north of US Highway 50. Figure 1-1 (below) depicts the project location.



Figure 1-1 – Victory MPA 1

Victory MPA 1 consists of 11 existing parcels as shown below in Table 1.

Table 1-1 – Victory MPA 1 Parcels

Assessor's Parcel Number (APN)	Area (Acres)
021-201-01	668.12
021-201-16	620.00
021-211-02	41.27
021-211-03	5.00
021-211-04	2.57
021-211-06	7.03
021-242-11	8.19
021-242-17	616.12
021-251-25	35.41
021-261-43	136.64
021-261-44	33.29
TOTAL	2,173.64

1.2 PURPOSE

The purpose of this Development Handbook (the “Handbook” or “Development Handbook”) is to provide a master development plan and development standards for the land comprising the Victory Master Planned Area, as shown in Figure 1-1 (“Victory MPA 1”), while assuring that the stated desired level of quality and concurrent infrastructure is achieved. This Handbook is not intended to limit creativity or prevent variation necessary to respond to unique site conditions, but rather to establish guidelines that will assure the delivery of consistent measures of design quality and engineering standards that meet or exceed the expectations for a state-of-the-art modern industrial project.

This handbook contains five (5) chapters that set forth the design allowances, standards and guidelines for the development of the Victory MPA 1 area. Chapter 1 (this chapter) provides an introduction and implementation rules and procedures for the MPA 1 area. Chapter 2 of the Handbook contains standards and regulations relative to development, which will establish the development standards for Victory MPA 1. Chapter 3 contains standards and parameters relative to design and architecture which establish the theme and quality of new development within Victory MPA 1. Chapter 4 summarizes infrastructure improvements and phasing while Chapter 5 provides for standards to be implemented during the construction phase(s).

All improvements shall be designed consistent with the standards and guidelines set forth herein. Maintenance of dedicated public areas and public improvements within Victory MPA 1, including streets, trails, storm water infrastructure, water infrastructure, and wastewater infrastructure, will be the responsibility of the City of Fernley. Specific responsibilities for the improvement and maintenance of these areas are further addressed in Chapters Two, Three, and Four of this Handbook.

1.3 VISION

Victory MPA 1 is an opportunity to create a large-scale employment center within the City of Fernley which will have a significant positive impact on the local economy. It is envisioned that Victory MPA 1 will create thousands of new jobs for those within the community (both existing and in the future). Victory MPA 1 can easily become an economic engine for the City of Fernley, providing a diverse tax base and improving the quality of life for City residents through the creation of higher wage jobs, employment diversification, and new opportunities currently unavailable in the marketplace. Fernley will become an industrial and employment hub with benefits that stretch well beyond the City's limits.

Victory MPA 1's diverse range of employment generating uses will extend from distribution warehouses and E Commerce to heavily automated high end manufacturing facilities and data centers. The project is anticipated to appeal to national and international companies seeking to avoid the ports and leverage the continental rail system, as well as those national companies looking to repatriate their operations driven by on-shore and near-shore dynamics. Commercial uses will complement the industrial core of the project as well as serve area residents and travelers along the Interstate 80 corridor.

The size and scale of Victory MPA 1 will require a significant investment in infrastructure by Mark IV Capital Properties, Inc., a California corporation ("Master Developer") as detailed in the subsequent chapters of this Handbook. New infrastructure improvements will be completed in a logical and sequential manner as future development demands dictate through each phase of the project, and the impacts of that expansion can be expected to last for decades. The depth of the employment base and diversity of the types of companies and well-paying jobs will drive direct employment and accelerate growth in related service industries.

Victory MPA 1's scope makes it a unique opportunity for the City of Fernley. The overall size and forecasted lifespan of the project require both the flexibility to respond to the "ebb and flow" of changes in market demand, technology standards and tenant requirements, and assurances that up-front investments made in anticipation of future development will be protected against sudden changes in public or private priorities. The need to balance flexibility and certainty is best met through this Handbook's planned development concept, as buttressed by the accompanying Development Agreement for Victory MPA 1 between the City and Master Developer (the "Development Agreement"), which together grant all stakeholders both the ability to adapt to change and diminish the risk that future changes will not unreasonably disturb settled expectations.

1.3.1 GUIDING PRINCIPLES

Victory MPA 1 is planned to become a nationally recognized hub of industrial development and logistical transport with immediate regional access to the surrounding 11 western states. Its rail infrastructure will deliver a diminished carbon footprint compared to the truck traffic it displaces and will provide a viable alternative to the dramatically more expensive and unreliable timing that has defined the ports and ocean bound shipping costs in recent years. From this vision, four guiding principles have been established to guide the development, growth, and design of Victory MPA 1. Each principle serves as a foundation for the vision that will create a desirable and successful project.

1. Efficient Land Use Patterns
2. Concurrency of Infrastructure and Public Services
3. Business Diversity
4. Economic Sustainability

1.3.2 EFFICIENT LAND USE PATTERN

The integration and concentration of a land uses within Victory MPA 1 is designed to maximize infrastructure efficiency, provide safe, logical, and convenient access, and provide an employment and revenue generating center for the City of Fernley. The mixture of commercial and industrial uses at varying levels of densities and intensities creates a synergy that attracts new businesses and provides for opportunities that cannot be found elsewhere in the marketplace. This will help to promote sustainable growth for the City of Fernley and foster a community where residents can live, work, and play.

1.3.3 CONCURRENCY OF INFRASTRUCTURE AND PUBLIC SERVICES

As described more fully in Chapter 4 below, new uses operating within Victory MPA 1 shall be required to demonstrate concurrent expansion of road and utility infrastructure to ensure that the transition and full integration of the incremental demands generated by proposed developments will be in place at the time of issuance of certificate of occupancy. It is anticipated that the planned infrastructure shall be undertaken and delivered by the Master Developer and thereafter dedicated to the City of Fernley (in accordance with this Handbook, the Development Agreement, or other future agreements between the City and parties initiating new development) and subject to the standards contained herein. Any standards not contained herein shall be per the City Code and standards or the applicable agency's code and standards.

1.3.4 CONCURRENCY OF INFRASTRUCTURE AND PUBLIC SERVICES

Victory MPA 1 shall provide concurrent expansion of road and utility infrastructure to be in place at the time of issuance of certificate of occupancy. This is described further in section 1.3.7.

1.3.5 BUSINESS DIVERSITY

The Victory MPA 1 Land Use Plan and table of allowed uses (refer to Chapter 2) provides opportunities for a diverse range of industrial uses including, but not limited to, manufacturing, warehousing/distribution, office, etc. This will serve to attract a wider range of users/businesses to the area. In turn, the project is anticipated to generate a variety of job opportunities across a diverse set of employers for residents of the region, including those that appeal to a wider range of skill sets and abilities.

1.3.6 ECONOMIC SUSTAINABILITY

Victory MPA 1 includes a land use mix that encourages job creation and economic growth. The Master Developer will market its Victory project intelligently by drawing reputable corporations, new and expanding firms, and identifying industries that seek a prominent, top quality industrial center. This, coupled with the city's diverse choices in housing, commercial activity, and recreational amenities will serve help to create a thriving, self-sustaining project accessible to a wide range of the community's workforce and employers.

1.3.7 IMPLEMENTING THE VISION

The vision for Victory MPA 1 will be carried out through the guidance provided by the four overarching principles described above. Architectural standards and guidelines are also provided to ensure buildings within Victory MPA 1 achieve high quality measures of contemporary aesthetic design and high-quality engineering that deliver top of market, functional specifications. Innovative use of materials, methods of construction, and site planning proposed herein will ensure the quality, consistency, and character of the community as it develops over time. This Handbook will be used by the ARC and the City of Fernley as a guide for reviewing individual projects within Victory MPA 1. Additionally, in order to ensure the consistency of architectural design and quality, individual buildings will require approval of, or a waiver from, the Architectural Review Committee (ARC).

Since implementation of public and private improvements will occur in multiple phases, over many years, the standards and guidelines contained herein establish a common framework to guide individual improvement plans. The development of Victory MPA 1 is controlled and restricted by these development requirements contained within this Handbook. A development agreement between the Master Developer and the City of Fernley that provides appropriate encouragement and flexibility for the future envisioned development of the Victory MPA1 area. In addition to these two documents, the future construction and design of Victory MPA 1 will also be guided by the applicable City of Fernley codes and regulations, and by the terms and conditions of the applicable set of Covenants, Conditions, and Restrictions (the "CC&Rs"). The Master Developer shall administer development standards and requirements of this Handbook and the City of Fernley shall enforce the same and all applicable aforementioned controlling documents.

As described more fully in Chapter 4 below, new uses operating within Victory MPA 1 shall be required to demonstrate concurrent expansion of road and utility infrastructure to ensure that the transition and full integration of the incremental demands generated by proposed developments will be in place at the time of issuance of certificate of occupancy. It is anticipated that the planned infrastructure shall be undertaken and delivered by the Master Developer and thereafter dedicated to the City of Fernley (in accordance with this Handbook, the Development Agreement, or other future agreements between the City and parties initiating new development) and subject to the standards contained herein. Any standards not contained herein shall be per the City Code and standards or the applicable agency's code and standards.

1.3.8 VICTORY MPA 1 ENVISIONED LAND USE PATTERN

The Victory MPA 1 Land Use Pattern (depicted in Figure 1-2) identifies an anticipated mix of uses to provide an overall estimate of anticipated project intensity. This figure this is not intended to be construed as the project land use plan. Land use designations and allowed uses within the various areas of Victory MPA 1 are identified in Chapter 2 under development standards.

The anticipated and targeted major land uses foreseen with Victory MPA 1 include: commercial; data processing, hosting, and related services ("DC" or Data Center); distribution and light industrial; manufacturing; retail; and transload/switching facilities.

Of the 2,173.64 acres, the vast majority of the project is dedicated to industrial and employment generating land uses with the some locationally appropriate areas allowing for commercial uses to help support the future businesses and employees within Victory MPA 1.

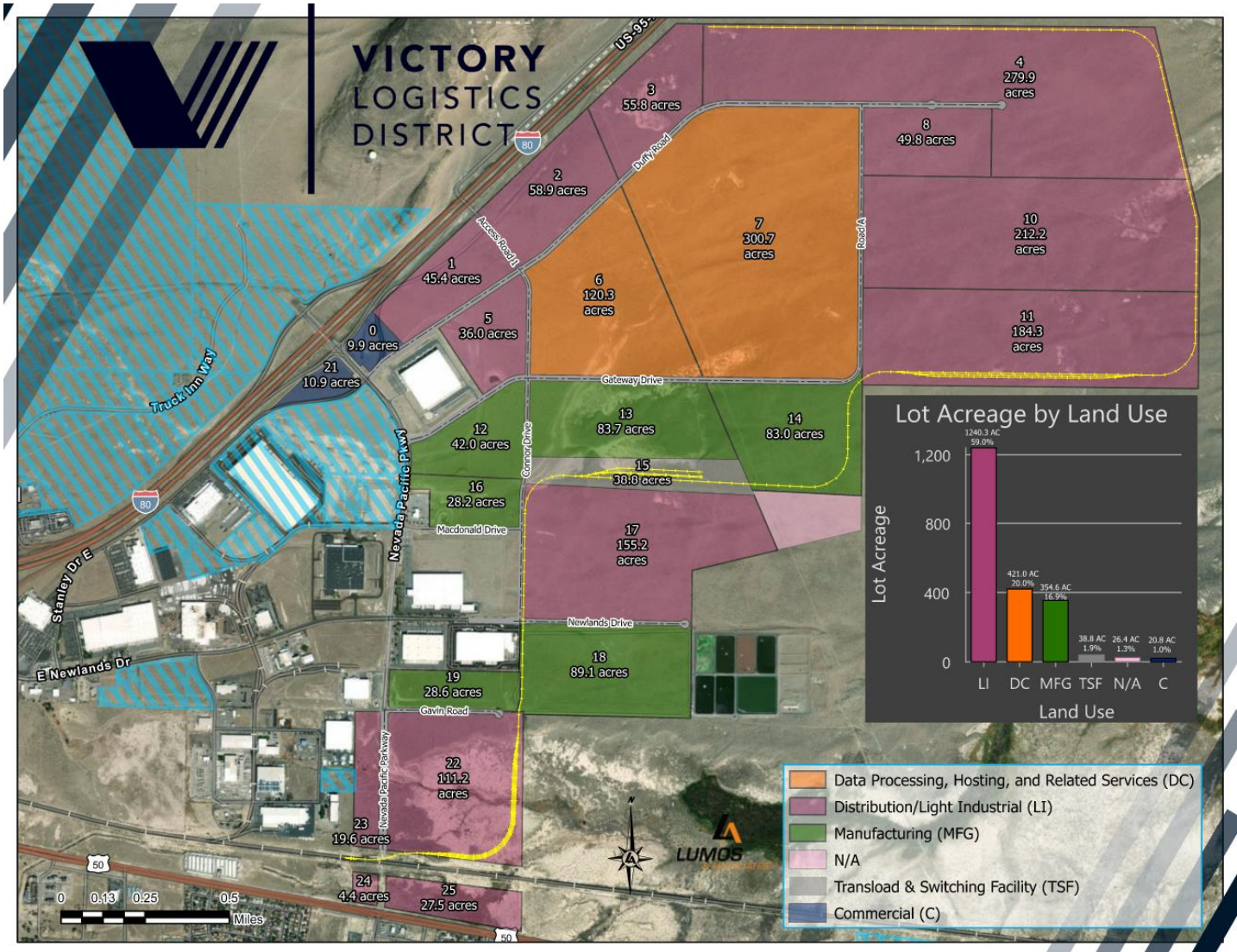


Figure 1-2 – Victory MPA 1 Land Use Areas

Table 1-2 (below) summarizes the currently anticipated mix of subcategory uses to be included within Victory MPA 1. While the final mix of uses will conform to the identified subcategories for Victory MPA 1, the actual share of each subcategory use will be determined by market demand and tenant needs.

Table 1-2 – Preliminary Land Use Summary

Land Use	Area (Acres)
Commercial	20.8
Data Center	421.0
Distribution/Light Industrial	1,240.5
Manufacturing	354.6
Transload & Switching Facilities	38.8
Roadway ROW	71.5
Detention Basin Parcel	26.4
TOTAL	2,173.6

The predominant use within the Victory Logistics District is planned to be industrial. This Handbook allows for appropriately located commercial uses and four distinct types of industrial land use classifications: data processing, hosting, and related services (“DC” or Data Center); Manufacturing ; Distribution/Light Industrial ; and Transload or Switching Facilities . The following is a description of each of the land use categories envisioned to be the predominate use types within Victory MPA 1. The descriptions are not intended to define or limit the categories but give a general overview of the typical uses and operations within each designation.

Commercial

The Commercial land use is generally expected to occur on the south side of Interstate 80 at the Nevada Pacific Parkway interchange. The intent of the R land use is to allow for freeway oriented commercial use that serves the needs of travelers along the interstate corridor, quick service retail/fast food, and other convenience retail to serve the daytime workforce which is forecast to expand dramatically as Victory MPA 1 expands in critical mass. Additionally, hotels are a permitted use within Retail that will provide lodging for visiting executives and other business travelers to headquarter facilities, temporary and permanent transition work forces and specialty task forces, and others that seek convenient freeway proximate hotel accommodations. Gaming facilities are allowed within Retail under a Conditional Use Permit within areas designated for Retail use.

Data Processing, Hosting, and Related Services (“DC” or Data Centers)

The DC use type envisions opportunities for large scale data centers. This may include facilities that centralize shared information technologies and operations including equipment for the purposes of storing, processing, and disseminating data and applications. Additionally, other uses may include evolving technologies, research facilities, robotics, and/or extensive material handling equipment, any of which may require transmission level power that requires on-site power substations and all of which shall be permitted uses within the DC category.

Manufacturing

Manufacturing (M) land use provides for the most intense industrial uses within Victory MPA 1. Businesses within the M designation will include the production, processing, repair, maintenance

or storage of goods and materials. The primary use of M facilities is focused on production rather than buying and selling.

Distribution/Light Industrial

DLI accounts for the largest land use category within Victory MPA 1 and supports the development of warehouse and distribution facilities. The category also supports logistics centers, smaller scale manufacturing, flex space, and similar type uses.

Transload & Switching Facilities

The TSF designation allows the ability to transfer cargo from one form of transportation to another on a large-scale basis, virtually always between trucking and rail transport. Examples include but are not limited to rail yards, switching facilities, and transloading from rail to alternate transportation modes (i.e. trucking). These uses also serve/complement the businesses envisioned within other Victory MPA 1 land use categories.

1.3.9 OPEN SPACE

Consistent with Nevada Revised Statutes (NRS) and City of Fernley Municipal Code requirements, land equal to not less than 10% of the overall Victory MPA 1 area will be provided/remain as open space. This equates to a total of 217± acres. To allow flexibility and provide for specific tenant/user needs, open space areas are not defined on the Victory MPA 1 Land Use Areas exhibit (Figure 1-2) or in the Land Use Plan (Figure 2-1). Instead, the Master Developer shall be responsible for demonstrating compliance with the 10% standard as development progresses through the project. The open space requirement is not implemented on a parcel-by-parcel basis. Rather, the 10% is an aggregate total of all land to be provided as open space, which land may be located within or include any of the following: (1) Victory MPA 1, (2) that certain 133 Acre historical easement located within APN 021-581-04 (a commonly held property located north of Interstate 80) or any land acquired by Master Developer that adds to the length or width of that historical easement) as Master Developer may designate as selected to satisfy any open space requirement for MPA 1 (the “California Emigrant Trail”), and/or (3) such other land contiguous to MPA 1 land as may be set aside by Master Developer to satisfy Victory MPA 1’s open space requirement. The 10% open space requirement may also be satisfied by dedication of areas located outside of Victory MPA 1 not included in the preceding sentence as may be approved by the City of Fernley as qualifying for that purpose. Finally, land area deed restricted in favor of the City as a “no build” zone or “native open space” area within parcels five acres or larger in size may be credited toward the 10% open space requirement.

Open space areas may include but not be limited to required landscaped and non-landscaped areas with slopes not exceeding 3:1, stormwater detention/retention facilities, land within easements for transmission and distribution of power, any landscape areas including center road medians (including hardscape, rock, and other ground cover) parkways, paths, and similar uses of land. Parking lots, roads, and railroad tracks (excluding landscape elements) may not be included in open space calculations.

1.4 HANDBOOK PROVISIONS

1.4.1 GENERAL PROVISIONS

This Handbook describes in general terms when, where and how development will occur within Victory MPA 1. It provides sufficient detail to establish the base qualitative standards for the project, along with design parameters to which each individual project built within Victory MPA 1 must conform. It is intended to offer design flexibility while at the same time maintaining minimum standards.

1.4.2 SEVERABILITY

This handbook shall take effect and be in force from and after the date of adoption.

1.4.3 AUTHORITY

This Handbook is enacted pursuant to the powers granted and limitations imposed by laws of the State of Nevada, including the statutory authority granted in Nevada Revised Statutes (NRS) Chapter 278, and all other relevant laws of the State of Nevada.

1.4.4 SEVERABILITY

If any section, subsection, sentence, or phrase of this Handbook is held to be invalid or unconstitutional by a court of competent jurisdiction for any reason, the remaining portions of this Handbook shall not be affected.

If any court of competent jurisdiction invalidates the application of any provision of this Handbook, then such judgment shall not affect the application of that provision to any other building, structure, or use not specifically included in that judgment.

If any court of competent jurisdiction invalidates any condition attached to the approval of an application for development, then such judgment shall not affect any other conditions or requirements attached to the same approval that are not specifically included in that judgment.

1.4.5 BINDING EFFECT OF HANDBOOK

Pursuant to NRS 278A.520, NRS 278A.570, and the Fernley Municipal Code, this Handbook cannot be modified or otherwise impaired by the action of the City without the consent of the Master Developer and any required landowner, except as specified in NRS 278.0205 and NRS 278A.410. Furthermore, pursuant to the Development Agreement and NRS 278.0201, the ordinances, resolutions or regulations applicable to Victory MPA 1 and governing the permitted uses in it, the density and standards for design, improvements and construction on it are those in effect at the time of adoption of this Handbook.

The standards set forth in this Handbook shall, in accordance with NRS 278A.570, supersede any zoning and subdivision statutes that may otherwise apply. In case of a conflict, this Handbook and any associated modifications/conditions required by the Fernley City Council at the time of adoption shall control. When not addressed by this Handbook, the provisions of the Fernley Municipal Code and the Development Agreement shall control.

1.4.6 MODIFICATIONS TO HANDBOOK

Upon adoption and recordation, the standards and requirements outlined within this Handbook shall take full effect. Any modification to these standards, land uses, densities, etc. that exceed 20% (refer to Section 1.5.2) shall require the review and approval of the Fernley Planning Commission. Modifications to the standards and text of this Handbook shall follow the text amendment process that identified in 32.03.040(d) of the Fernley Municipal Code. Changes to the PD boundary or land use plan shall be subject to the review of a Zoning Map Amendment (ZMA) as identified in 32.03.040(e) of the Fernley Municipal Code.

1.5 INDIVIDUAL PROJECT APPROVAL PROCESS

1.5.1 GENERAL PROVISIONS

Each Phase included in Victory 1A will be comprised of one or more industrial or commercial projects (each an “Individual Project”). Prior to development of an Individual Project, the project shall be reviewed to determine that it meets and conforms with the standards and guidelines of the Handbook, following the plan review approval process set forth in this Section. Subject to the binding effect of this Handbook and Section 1.4.2 above, all statutory public review requirements set forth in NRS shall remain in full effect and shall be applied to new development requests within Victory MPA 1.

The Victory Logistics District is a large and isolated industrial development, located in the northeast quadrant of Fernley on the edge of existing development. The future development of the site will largely only have significant impact on itself with respect to the division of land and proposed land use establishment. Due to this separated nature from the remainder of the existing community, all entitlement processing, including the tentative and final map processes are to be streamlined from the standard City of Fernley processes.

A developer or builder of an Individual Project is referred to hereinafter as the “Project Applicant.” Prior to submitting any plan or entitlement application for an Individual Project to the City for review and approval, a Project Applicant shall first obtain approval of the relevant plans from the ARC, pursuant to a review and certification process as set forth in the CC&Rs. After obtaining such certification, the plans shall be submitted to the City of Fernley Planning Department to assure that each Individual Project meets or exceeds the Development Standards (see Chapter 2) and fits within the Design Standards and Guidelines (see Chapter 3) established by this Handbook, subject to the Development Agreement and applicable city code requirements.

Furthermore, whenever the City (in all the foregoing capacities), at any time in the approval processes set forth in Section 1.5.2 of this Handbook, denies the request of a Project Applicant or grants its approval subject to conditions, the City shall state in writing with specificity the standards, guidelines or parameters with which the Individual Project fails to conform. If the Project Applicant does not accept the City’s conclusions or conditions, the Project Applicant may appeal the decision through the defined means under each approval process.

All action taken by the City, in any capacity, with respect to review and decision upon an Individual Project shall be subject to the Development Agreement including, without limitation, the

provisions therein regarding the laws and regulations to apply to determinations on Individual Projects. Subject to the Development Agreement, (i) in the event of any conflict between the plan review process set forth in this Handbook and any other review process used by the City, this Handbook shall control, and (ii) where this Handbook is silent on a particular approval procedure, the Fernley Municipal Code or other regulations governing development of land shall apply.

1.5.2 MINOR AND MAJOR DEVIATIONS

The City Administrator may grant a “Minor Deviation” of up to twenty percent (20%) from the standards and guidelines in the Handbook, so long as such deviation will not impair the purpose of the Handbook. A minor deviation shall not be granted to change required gross open space acreage or relocate any approved land use designations as shown on the Land Use Plan, as set forth on Figure 2-1 of this Handbook. In accordance with the Fernley Municipal Code, the Administrator may grant Minor Deviations from requirements established for a land use district without conducting a hearing if the applicant for a minor deviation obtains the written consent of the ARC. Minor deviations include, but are not limited to, adjustments of the location and/or dimensions of buildings, configuration of parking areas and internal roadways, etc., providing such adjustments do not change any backbone roadway routes or intersections.

A minor deviation shall follow the process and procedures defined in 32.03.090(c) with the exception of the allowance of deviating up to 20% from a handbook standard. The minor deviation must be approved by the ARC, in addition to the city review and approval.

The City may grant a “Major Deviation” between twenty percent (20%) and fifty (50%) with review and approval by the Fernley Planning Commission.

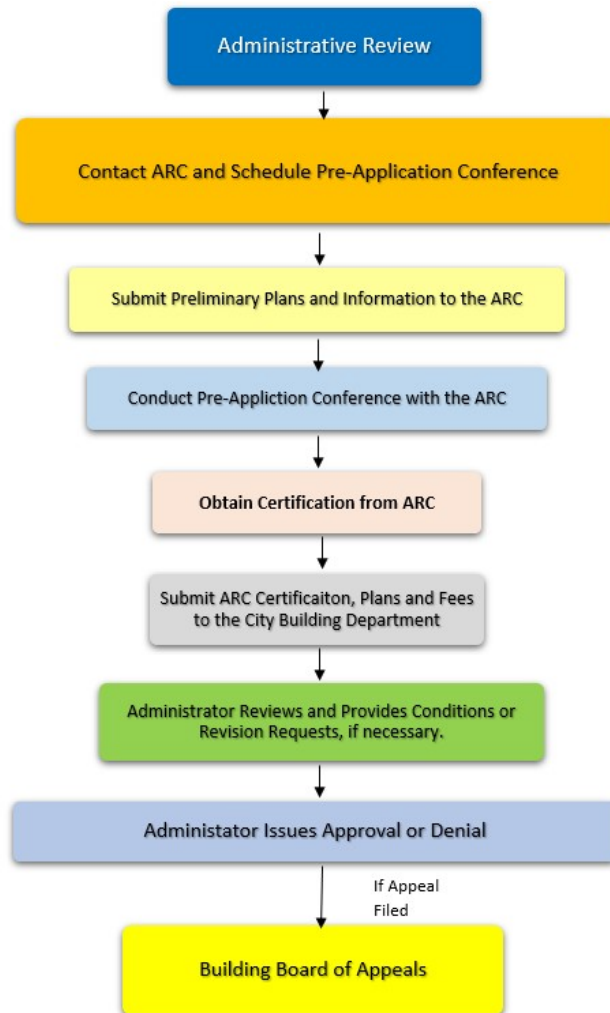
A major deviation shall follow the process and procedures defined in 32.03.090(a) with the exception of the allowed range of deviation from the Handbook standard shall be 20% to 50%. A major deviation must be approved by the ARC, in addition to the city review and approval.

1.5.3 VARIANCES

The City of Fernley may grant a variance for deviations that are greater than 50% of the required standard.

A variance request shall follow the process and procedures defined in 32.03.090(d). A variance request must be approved by the ARC, in addition to the city review and approval.

1.5.4 ADMINISTRATIVE REVIEW PROCESS



All new building construction will require an Administrative Review unless a Conditional Use Permit is required, as dictated by Table 2-1, Land Use Matrix. The review process for Individual Projects consists of three distinct, but interrelated phases:

- 1) The first phase is the pre-application process with the ARC. It is during this phase that a Project Applicant becomes familiar with the application requirements and obtains feedback on preliminary design ideas.
- 2) The second phase is the ARC review/certification process.
- 3) The third phase consists of the City's building permit process for approving the Individual Project. Here the City will make its determination as to whether the Project meets and conforms to the standards set forth in this Handbook. City staff will be involved in the approval as outlined below.

It is incumbent upon the Project Applicant to become familiar with the City's building permit review process and application requirements.

PHASE I: PRE-APPLICATION PROCESS

Step 1: A Project Applicant contacts the ARC to clarify the handbook requirements relative to the Individual Project and contacts the City of Fernley Planning Department to request a pre-application meeting clarify the requirements, standards and policies as identified in this Handbook and applicable sections of the Fernley Municipal Code (FMC) and requests a pre-application conference with the City of Fernley.

Step 2: The Project Applicant submits to the ARC a preliminary site analysis, site plan, landscape concept, grading concept, and preliminary or conceptual utility and infrastructure plan.

Step 3: The Project Applicant attends a pre-application conference with the ARC. The Project Applicant obtains feedback from attendees and obtains the necessary application(s) and submittal requirements.

PHASE II: ARC APPROVAL PROCESS

Step 4: The Project Applicant obtains certification of its plans from the ARC ("Victory Certification").

PHASE III: CITY OF FERNLEY APPROVAL PROCESS

Step 5: A Project Applicant submits the Victory Certification, required fee(s) and completed application(s) to the City of Fernley Building Department for review, following the City of Fernley Application Checklist (obtained from the city) for the associated application request. The application is reviewed for completeness by City staff and distributed to appropriate City departments and commenting agencies for comments.

Completeness. Completeness of an application is determined by the following:

1. An application is not complete until all necessary items are submitted as identified and applicable in the associated City of Fernley application requirements checklist.
2. The city will not process incomplete applications. Review for completeness of application forms is solely to determine whether preliminary information required for submission with the application is sufficient to allow further processing. It does not constitute a decision as to whether an application complies with this chapter.
3. Within 15 working days after an application is received, the administrator shall determine whether the application is complete and send a written notice of the determination to the applicant. The administrator shall specify those parts of the application that are incomplete and will indicate how they can be made complete. The administrator and the decision-making agency are not obligated to further review the application until the required information is provided.

If the administrator determines that the application is still not complete, the applicant may appeal that determination to the city council by filing a written notice of appeal with

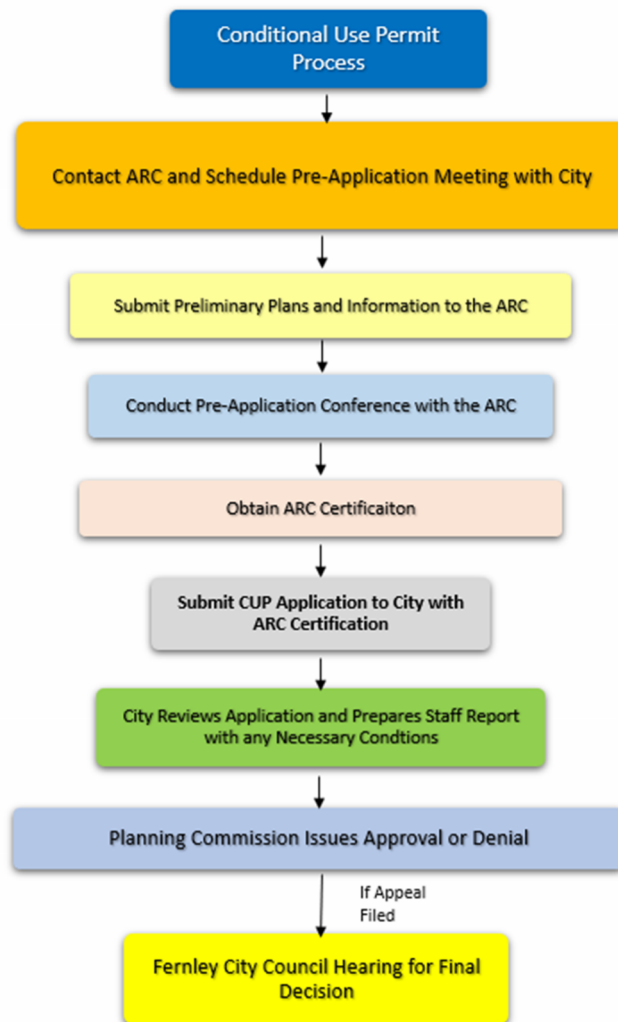
the administrator. The notice of appeal shall be filed within ten days after the administrator's determination. The city council shall issue a written determination on the appeal within 60 days after receipt of the notice of appeal.

4. Nothing in this section precludes an applicant and the city from mutually agreeing to an extension of any time limit provided by this section.

Step 6: The Administrator will review the Individual Project's conformance with the development standards and design parameters set forth in this Handbook. City staff approves/denies the Individual Project and submits a letter to the Project Applicant specifying any conditions necessary to bring the project into conformance with the applicable portions of city code. If the Project Applicant does not accept staff's conclusions or conditions, the Project Applicant may exercise its Appeal Rights, appealing the administrator's to Building Board of Appeals or other body or individual designated by the City Manager.

Step 7: Submit for Building Permit

1.5.5 CONDITIONAL USE PERMIT PROCESS



Uses requiring a conditional use permit, as dictated by Table 2-1, Land Use Matrix shall follow this process. The review process for Individual Projects consists of three distinct, but interrelated phases:

- 1) The first phase is the pre-application process with the ARC. It is during this phase that a Project Applicant becomes familiar with the application requirements and obtains feedback on preliminary design ideas.
- 2) The second phase is the ARC review/certification process.
- 3) The third phase consists of the City's conditional use permit process for approving the Individual Project. Here the City will make its determination as to whether the Project meets and conforms to the standards set forth in this Handbook. City staff will be involved in the approval as outlined below.

It is incumbent upon the Project Applicant to become familiar with the City's building permit review process and application requirements.

PHASE I: PRE-APPLICATION PROCESS

Step 1: A Project Applicant contacts the ARC to clarify the requirements, standards and policies as identified in this Handbook and applicable sections of the Fernley Municipal Code (FMC) and requests a pre-application conference with the City of Fernley.

Step 2: The Project Applicant submits to the ARC a preliminary site analysis, site plan, landscape concept, grading concept, and preliminary or conceptual utility and infrastructure plan.

Step 3: The Project Applicant attends a pre-application conference with the ARC. The Project Applicant obtains feedback from attendees and obtains the necessary application(s) and submittal requirements.

PHASE II: ARC APPROVAL PROCESS

Step 4: The Project Applicant obtains certification of its plans from the ARC ("Victory Certification").

PHASE III: CITY OF FERNLEY APPROVAL PROCESS

Step 5: A Project Applicant submits the Victory Certification, required fee(s) and completed conditional use permit application(s) to the City of Fernley Planning Department for review, following the City of Fernley Application Checklist (obtained from the city). The application is reviewed for completeness by City staff and distributed to appropriate City departments and commenting agencies for comments.

Completeness. Completeness of an application is determined by the following:

1. An application is not complete until all necessary items are submitted as identified and applicable in the associated City of Fernley application requirements checklist.
2. The city will not process incomplete applications. Review for completeness of application forms is solely to determine whether preliminary information required for submission with the application is sufficient to allow further processing. It does not constitute a decision as to whether an application complies with this chapter.
3. Within 15 working days after an application is received, the administrator shall determine whether the application is complete and send a written notice of the determination to the applicant. The administrator shall specify those parts of the application that are incomplete and will indicate how they can be made complete. The administrator and the decision-making agency are not obligated to further review the application until the required information is provided.

If the administrator determines that the application is still not complete, the applicant may appeal that determination to the city council by filing a written notice of appeal with the administrator. The notice of appeal shall be filed within ten days after the

administrator's determination. The city council shall issue a written determination on the appeal within 60 days after receipt of the notice of appeal.

4. Nothing in this section precludes an applicant and the city from mutually agreeing to an extension of any time limit provided by this section.

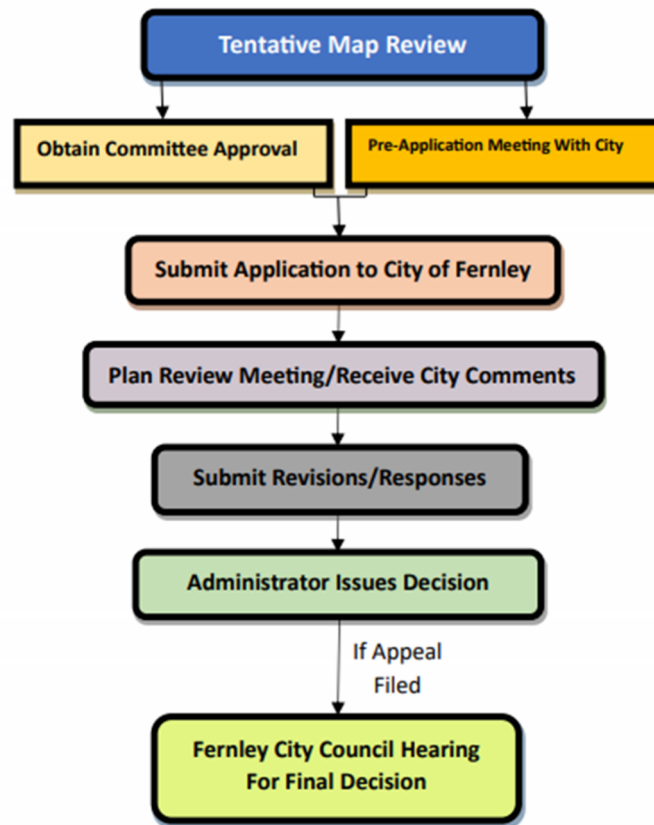
Step 6: The Administrator will review the Individual Project's conformance with the development standards and design parameters set forth in this Handbook. City staff will prepare a staff report with a recommendation as well as any conditions necessary to bring the project into conformance with the application portions of city code.

A planning commission will schedule the Individual Project for a Planning Commission hearing. approves/denies the Individual Project and submits a letter to the Project Applicant specifying any conditions necessary to bring the project into conformance with the applicable portions of city code. If the Project Applicant does not accept staff's conclusions or conditions, the Project Applicant may exercise its Appeal Rights, appealing the administrator's to Building Board of Appeals or other body or individual designated by the City Manager.

Step 7: A Planning Commission public hearing will be held to approve the Conditional Use Permit. The Planning Commission shall be the final decision-making body for Conditional Use Permit applications in the absence of an appeal. If an appeal is filed, a public hearing is held before the City Council to approve the Conditional Use Permit.

Step 8: Submit for Building Permit

1.5.6 TENTATIVE MAP/SUBDIVISION PROCESS



Applicability - Tentative maps shall be required for all nonexempt subdivisions consisting of five or more lots. The property included within the boundaries of the proposed tentative map shall coincide with platted lands or deed boundaries or must be platted prior to the recordation of the first final map.

Application filing - Applications for tentative maps shall be submitted to the administrator.

Plan Review Meeting - The Project Applicant attends a Plan Review meeting(s) with the appropriate City departments to discuss the application and offer comments. The Administrator will review the Individual Project's conformance with the Development Standards and Design Parameters set forth in this Handbook. City staff will provide written comments of any areas that need to be addressed prior to rendering a decision, if any exist.

Resubmittal - If comments were provided that need to be addressed, the Project Applicant shall resubmit information addressing the comments that were provided by staff at the Plan Review meeting.

Administrator review and decision - The administrator shall review each proposed tentative map in light of the approval criteria of this subsection and the requirements of this handbook

and development agreement and distribute the application to other review agencies, including those required by NRS. Based on the results of those reviews, the administrator shall provide an approval, approval with conditions or a denial of the tentative map. The administrator shall take action on the tentative map within 60 days of the application being deemed complete.

Tentative map approval criteria

Review and decisions. Review and decisions on tentative maps shall be based on consideration of all of the following criteria:

1. Compliance with environmental and health laws and regulations concerning water and air pollution, solid waste disposal, water supply facilities, community or public sewage disposal, and, where applicable, individual systems for sewage disposal;
2. Availability of water that meets applicable health standards and is sufficient for the reasonably foreseeable needs of the subdivision;
3. Availability and accessibility of utilities;
4. Availability and accessibility of public services such as schools, police and fire protection, transportation, recreation facilities, and parks;
5. Consistency with the zoning district regulations;
6. Conformity with the master streets and highways plan;
7. Effect of the proposed subdivision on existing public streets and the need for new streets or highways to serve the subdivision;
8. Physical land characteristics, such as floodplain, slope, soil, and elevation differentials with abutting properties;
9. Recommendations and comments of reviewing bodies;
10. Conformity to the master sewer and water utility plan; and
11. Compliance with this Handbook and all other applicable regulations.

Appeals.

Applicability. This section applies to any decision of the planning commission, administrator, or any other person appointed or employed by the city council who is authorized to make administrative decisions regarding the use of land under this title.

Who May Appeal a Tentative Map Decision

The Project Applicant or any person aggrieved may appeal a decision if they claim that:

1. The intent of a standard in this title was incorrectly interpreted;
2. This title does not apply;
3. A better form of design is proposed that does not require a waiver of the requirements of this title; or

4. The decision would violate state or federal law.

The right to appeal to the city council is waived upon failure to comply with the procedures set forth in this section.

Initiation.

The appeal is initiated by filing a written notice of appeal with the city clerk which identifies all pertinent issues within 11 days after the action or decision.

The mayor or any member of the city council may request review of the administrator's or planning commission's action or decision with a written notice to the city clerk or orally at a meeting of the city council. Any such notice must be made within 11 days after the action or decision.

Completeness. Completeness of an application is determined by the following:

1. An application is not complete until all necessary items are submitted as identified and applicable in the associated City of Fernley application requirements checklist.
2. The city will not process incomplete applications. Review for completeness of application forms is solely to determine whether preliminary information required for submission with the application is sufficient to allow further processing. It does not constitute a decision as to whether an application complies with this chapter.
3. Within 15 working days after an application is received, the administrator shall determine whether the application is complete and send a written notice of the determination to the applicant. The administrator shall specify those parts of the application that are incomplete and will indicate how they can be made complete. The administrator and the decision-making agency are not obligated to further review the application until the required information is provided.

If the administrator determines that the application is still not complete, the applicant may appeal that determination to the city council by filing a written notice of appeal with the administrator. The notice of appeal shall be filed within ten days after the administrator's determination. The city council shall issue a written determination on the appeal within 60 days after receipt of the notice of appeal.

4. Nothing in this section precludes an applicant and the city from mutually agreeing to an extension of any time limit provided by this section.

Notice. No specific notice is required by this Code. The city will provide notice by mail or email to the Project Applicant or aggrieved parties who request personal notice.

Decision.

The city clerk shall set the matter for public hearing at the next available regular meeting of the city council.

The city council shall review the matter de novo.

The city council may affirm, modify, remand for further consideration or reverse the action or decision.

The city council shall render its decision within 60 days after a complete appeal is filed.

Approval criteria. In deciding an appeal, the Fernley City Council will consider:

1. The statement of purpose underlying the regulation of the improvement of land expressed in Nevada state law;
2. The plain language of the regulation and principles of interpretation in this Chapter and Nevada law; and
3. Any applicable requirements of state or federal law.

The decision of the Fernley City Council is a final decision for the purpose of judicial review.

Subsequent applications. If, upon appeal to the City Council, a tentative map is denied, a new application may be submitted, without delay to address the issues that were identified causing the denial.

Judicial Review of Appeals.

Any person who has appealed a decision to the governing body in accordance with this section and is aggrieved with the decision of the Fernley City Council may appeal the decision, pursuant to NRS Ch. 278, to a court having competent jurisdiction by filing a petition for judicial review within 25 days after the date of filing of notice of the decision with the clerk of the Fernley City Council.

Scope of approval. Any permit or decision rendered under this chapter shall comply with any order of the city council, as modified or reversed by a final decision on judicial review.

Recordkeeping. The city clerk will maintain a record of all appeals as provided by the city Charter and Nevada law.

Lapse of approval. An approved tentative map shall lapse and be of no further force and effect four years after the date of tentative map approval by the planning commission unless one of the following occurs:

1. A final map for the subdivision is recorded; or
2. The first of a series of final maps covering a portion of the approved tentative map is recorded. Subsequently, the subdivider shall record a series of final maps, each covering a portion of the approved tentative map, within successive two-year periods after the date of recordation of the latest final map in the series.

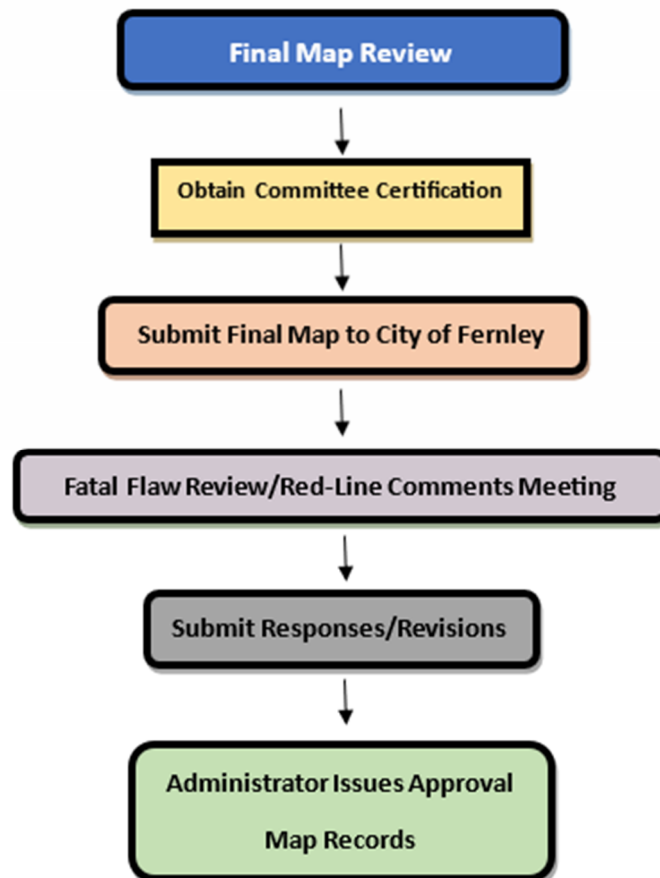
If the subdivider fails to record a final map for any portion of the tentative map within four years after the date of approval of the tentative map or within two years after the date of recordation of the most recently recorded final map, all proceedings concerning the subdivision are terminated.

The City Council may grant an extension of time of up to two years for the recordation of any final map in cases where the subdivider is presenting a series of successive final maps. If the subdivider is submitting final maps for a phased subdivision in a timely manner, no new requirements or conditions other than those imposed on each of the final maps in the series may be placed on the final map when an extension of time is granted unless the requirement is directly attributable to a change in applicable laws that affect the public health, safety or welfare.

Amendments to approved tentative subdivision maps. Amendments to approved tentative maps or conditions of approval shall be processed in the same manner as the original application for division of land.

1.5.7 FINAL MAP PROCESS

The final map processes may be expedited to run concurrently with the tentative map processes, at the discretion and risk of the Project Applicant.



Application filing. Applications for final maps shall be submitted to the administrator.

Prior to the filing of a final map application, the Project Applicant shall meet with the city staff through a pre-application meeting to discuss any initial comments or questions regarding the final map or civil drawings to be submitted in conjunction with the final map.

The final map and associated civil drawings may be submitted in conjunction with the tentative map application at the discretion and risk of the Project Applicant. A “hold-harmless” letter shall be submitted with a final map that is submitted prior to the approval of the Tentative Map.

Administrator review and action. The administrator shall distribute the application to other city departments for their review and comment. After reviews are complete, the administrator shall act to approve, approve with conditions, or deny the application, based on whether the final map is consistent with the approved tentative map and whether it complies with this PUD handbook and the applicable portions of Code and all other applicable regulations.

Acceptance of dedications. In approving a final map, the administrator and the city surveyor shall be authorized to accept or reject offers of dedications and to require improvements of streets and easements.

Civil drawings. Civil drawings shall be submitted in conjunction with submittal of the final map or starting construction of any required improvements, civil drawings shall be submitted to the City of Fernley for review. Prior to recordation of the final map for City of Fernley signatures, bonds, fees, and civil drawings must be approved and the Project Applicant shall pay all required fees.

Certificates and acknowledgments. The certificates and acknowledgments required by the applicable provisions of NRS 278 and the city shall appear on a final map.

Recording; lapse of approval. The Project Applicant shall be responsible for recording the approved final map with the county recorder. If the approved final map is not recorded within one year of the date of approval of the final map, the approved final map shall lapse and be of no further effect.

Copy of recorded map to be delivered to city. Within 15 days of recordation of the final map, the subdivider shall deliver an 11-inch by 17-inch conformed copy of the recorded final map, along with an application for street addressing, to the administrator for establishment of street addresses and storage in the city files.

Effect of approval. Following approval of the final map by the administrator, the subdivider may obtain a building permit for the subject property or transfer, sell, agree to sell, or negotiate to transfer or sell the subject lots.

Title to dedicated property. Title to property accepted for dedication passes when the final map is recorded. If offers of dedication are rejected at the time of final map approval, offers of dedication shall be deemed to remain open. The City of Fernley may, by resolution at any later date and without further action by the subdivider, rescind its action of nonacceptance and accept and open the streets for public use, which acceptance shall be recorded in the office of the county recorder and be so noted on the subdivision map by the recorder.

Amending recorded maps. Plat or survey amendments shall be processed in accordance with NRS 278.473 through 278.477, inclusive.

1.5.8 TEMPORARY USES

Any uses allowed under Table 2-1 Allowed Uses as “Temporary Uses” shall gain approval from the ARC and follow the Temporary Use Permit requirements identified in 32.03.050(c) of the Fernley Municipal Code.

1.5.9 ACCESSORY/ANCILLARY USES

Any uses allowed under Table 2-1 Allowed Uses as “Accessory/Ancillary Uses” shall gain approval from the ARC and follow the Accessory Uses requirements for review and approval through the City of Fernley as identified in 32.07.030 . Only the uses identified within Table 2-1 as Accessory/Ancillary Uses may be allowed to be established within Victory MPA 1.

1.5.10 ADMINISTRATIVE APPROVAL TIMELINES

Without limiting the generality of any of the foregoing, the City agrees that matters subject solely to administrative review under the City’s Code or this Handbook (e.g. building permit applications, or any other application reviewed by planning commission and/or city council solely on appeal, collectively “**Administrative Approvals**”) shall be processed strictly in accordance with the time frames set forth in the City’s Code, which time frames shall not be waivable.

A meeting will be conducted between the city and the design professionals and/or applicant for all administrative level permits within 10 days of an application being deemed complete. The meeting will provide an opportunity for open dialogue regarding areas of question or issue through the initial review and to help find solutions to questioned design items that might otherwise delay the project review. If the City fails to meet the 30 day timeframe for Administrative Approval, the relevant Administrative Approval shall be deemed approved by the City.

CHAPTER 2 USE REGULATIONS AND DEVELOPMENT STANDARDS

This chapter establishes the regulatory requirements for the land uses allowed within Victory Master Planned Area (Victory MPA 1). These requirements include standards for land use, density/intensity, and for the design of rights-of-way, landscape buffers, trails, etc. All development shall comply with the text, policies, standards, and associated tables and exhibits of this Development Handbook (Handbook). Where a conflict exists between these development standards and the City of Fernley Municipal Code the standards contained herein shall control. Where this Handbook remains silent, the provisions and definitions within the City of Fernley Municipal Code and the Development Agreement shall apply.

2.1 LAND USE DESIGNATIONS

This Handbook allows for project and community supportive commercial, and retail uses and industrial uses with distinct types of users specifically envisioned and desired within the Victory Logistics District. The primary anticipated industrial land use types include: Data Center, Manufacturing, Distribution/Light Industrial; and Transload & Switching Facilities. The following is a description of each of the land use categories permitted in Victory MPA 1. The descriptions are not intended to define or limit the categories but give a general overview of the typical uses and operations within each designation.

Victory Commercial (V-C)

The Victory Commercial (V-C) land use comprises the majority of the Victory MPA 1 area. The intent of the V-C land use is to allow for freeway oriented commercial use that serves the needs of travelers along the interstate corridor, quick service retail/fast food, and other convenience retail to serve the daytime workforce which is forecast to expand dramatically as Victory MPA 1 expands builds out. Additionally, hotels are a permitted use within V-C designated area that will provide lodging for visiting executives and other business travelers to headquarter facilities, temporary and permanent transition work forces and specialty task forces, and others that seek convenient freeway proximate hotel accommodations. Restricted gaming facilities are allowed within Retail under a Conditional Use Permit within areas designated for Retail use.

Victory Industrial (V-I)

The predominant use within the Victory Logistics District is planned to be industrial with targeted to be large scale facilities, including data centers, manufacturing facilities, general manufacturing and warehousing and distribution facilities. All these uses will be supported by the Victory Logistics (provided) transload and switching facilities. These facilities will provide the ability to transfer cargo from truck to rail or vice versa on a large-scale basis at centralized locations within the development.

While these are the general desired and targeted land use types, additional supportive uses will be allowed within the V-I designation. Such supportive uses include commercial or retail-based uses that will predominantly support the businesses and employees working within the Victory Logistics District. Table 2-1 and Figure 2-1 below show the areas associated with the V-I and V-C land uses.

2.1.1 GENERAL DEVELOPMENT STANDARDS

The purpose of this section is to establish general development standards for each of the land use categories identified in the Victory MPA 1.

2.1.1.1 VICTORY LOGISTICS COMMERCIAL (V-C) & LOCATIONAL (L)

TYPE	V-C
SITE	
Site Size (minimum)	5,000 square feet ¹
Site Coverage (maximum)	None
Site Width (minimum)	50 feet
SETBACKS (principal buildings) ²	
Front/Exterior Side	0 feet
Side	0 feet
Rear	0 feet
LANDSCAPING	
Landscape Requirement	Minimum of 10% Development Area ³
BUILDING HEIGHT	
Maximum Building Height	60 feet ⁴
NOTES The V-C Development Standards shall apply to any commercial uses located within the “locational” use area in the V-I designation. 1 – Reduced site area shall be permitted for pad sites within a larger comprehensive center/project. 2 – Setbacks include any applicable landscape buffers. 3 – If part of a larger overall center/development, 10% shall be the requirement for the entire site in aggregate. 4 – Building heights may be increased with the approval of a Conditional Use Permit. Building projections such as towers, gables, spires, cupolas and like structures including mechanical	

TYPE	V-C
equipment may extend five feet above the allowed maximum building height. All mechanical equipment must be screened by architectural feature from view at street level and parking lots.	

Submittal 09.15.2023

2.1.1.2 VICTORY INDUSTRIAL (V-I)

TYPE	V-I
SITE	
Site Size (minimum)	20,000 square feet ¹
Site Coverage (maximum)	None
Site Width (minimum)	75 feet
SETBACKS (principal buildings)²	
Front/Exterior Side	15 feet
Side	0 feet
Rear	0 feet
LANDSCAPING	
Landscape Requirement	Minimum of 10% of Development Area ³
BUILDING HEIGHT	
Maximum Building Height	75 feet ⁴
NOTES 1 – Reduced site area shall be permitted for pad sites within a larger comprehensive center/project. 2 – Setbacks include any applicable landscape buffers. 3 – If part of a larger overall center/development, 10% shall be the requirement for the entire site in aggregate. 4 – Building heights may be increased with the approval of a Conditional Use Permit. Building projections such as towers, gables, spires, cupolas and like structures including mechanical equipment may extend ten feet above the allowed maximum building height. All mechanical equipment must be screened by architectural feature from view at street level and parking lots.	

Submittal 09.15.2023



2.1.1.3 USE SPECIFIC DEVELOPMENT STANDARD

TYPE	Data Processing, Hosting, and Related Services (DC)
SITE	
Site Size (minimum)	10,000 square feet ¹
Site Coverage (maximum)	None
Site Width (minimum)	75 feet
SETBACKS (principal buildings)²	
Front/Exterior Side	10 feet
Side	0 feet
Rear	0 feet
LANDSCAPING	
Landscape Requirement	Minimum of 10% of Development Area ³
BUILDING HEIGHT	
Maximum Building Height	75 feet ⁴
NOTES Accommodations for deviations from building standards shall be afforded to allow for transmission power elements including substation design, construction and screening that are consistent with NVE standards and building design guidelines shall likewise allow for building designs which may be one and two story configurations and may include pre-engineered insulated metal buildings that may be prefinished in neutral color palates or concrete tilt up designs that do not conform to the design standards in this handbook nor the development code requirements, all of which may change as contemporary data center design standards may evolve over time. 1 – Reduced site area shall be permitted for pad sites within a larger comprehensive center/project. 2 – Setbacks include any applicable landscape buffers.	

TYPE	Data Processing, Hosting, and Related Services (DC)
3 – If part of a larger overall center/development, 10% shall be the requirement for the entire site in aggregate. 4 – Building heights may be increased with the approval of a Conditional Use Permit. Building projections such as towers, gables, spires, cupolas and like structures including mechanical equipment may extend ten feet above the allowed maximum building height. All mechanical equipment must be screened by architectural feature from view at street level and parking lots.	

Table 2-1 – Victory MPA 1 Land Use Designations

Land Use	Area (Acres)
Victory Commercial (V-C)	20.9
Victory Industrial (V-I)	2,152.7
TOTAL	2,173.6

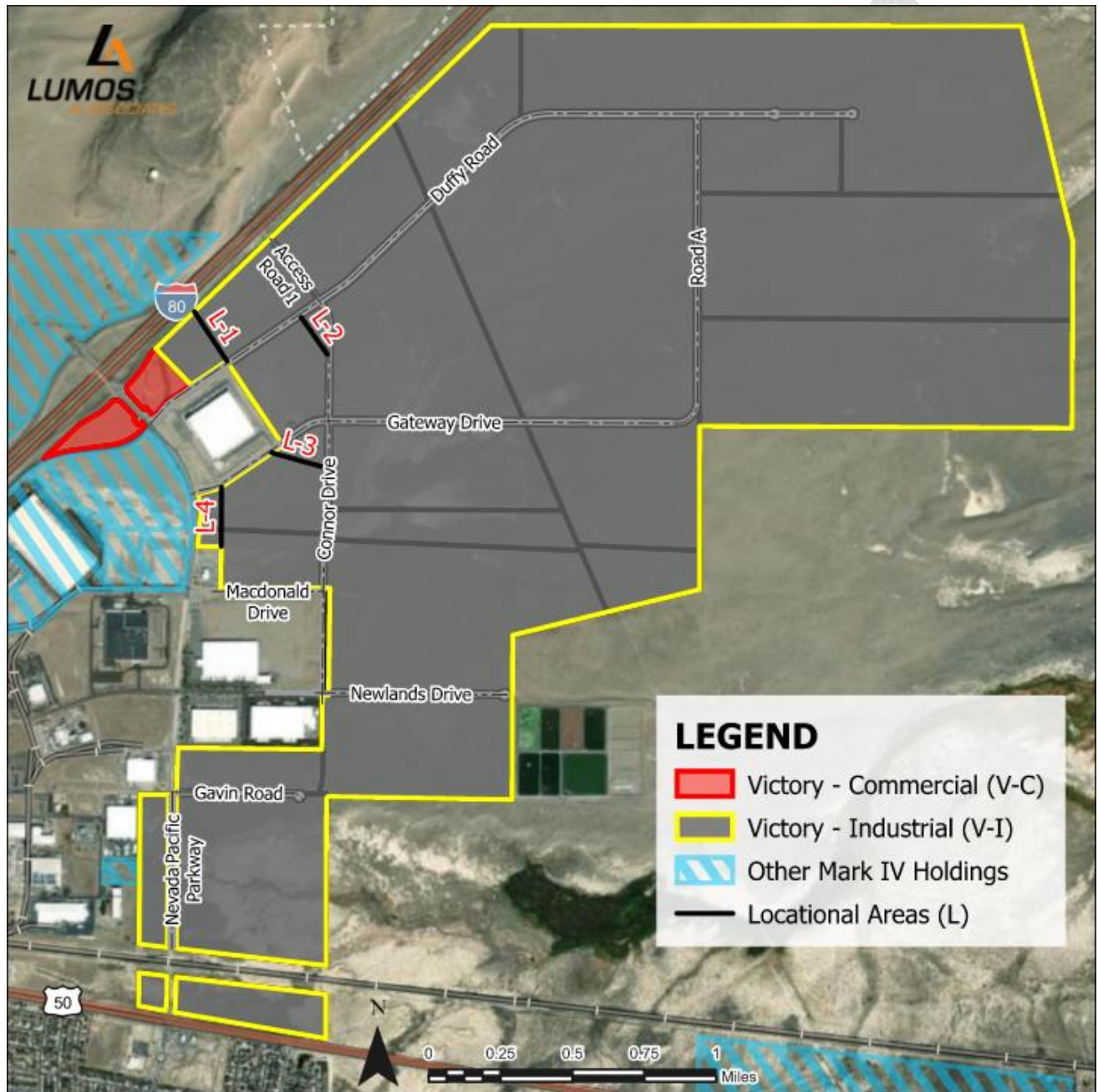


Figure 2-1 – Land Use Designations

2.1.2 PERMITTED AND CONDITIONAL USES

Permitted uses, uses requiring a Conditional Use Permit, and prohibited uses within the Development Plan, are provided in the following Land Use Matrix table (2-1). Definitions for specific land uses shall follow the City of Fernley Municipal Code definitions. This matrix organizes allowed uses within the land use categories presented within the Victory MPA 1 Land Use Plan. The following symbols are used in the matrix to indicate whether a proposed use is permitted, locationally permitted/conditionally permitted, requires a Conditional Use Permit or is not permitted:

- A Accessory/Ancillary Use – Permitted as an accessory use to a permitted use if the use meets the standards contained herein.
- P Permitted by Right – Permitted if the use meets the standards established herein.
- C Conditional Use – Requires approval of a Conditional Use Permit. This may include additional conditions to mitigate specific impacts, operations, etc.
- L Locational Allowed Use – locational allowed use areas are identified on the Land Use Plan (Figure 2-1) with an “L.” These are areas where additional supportive commercial uses would be allowed within the V-I district. The uses are either “Permitted by Right” or required a “Conditional Use” Permit as signified by P/L or C/L, respectively. The locational allowance areas are generally defined to be:
 - L1 – Land at the eastern border of Lot 0 on the north side of Duffy Rd to that point to the east which would match the eastern border of the Polaris building at 1755 Nevada Pacific Pkwy (APN 021-242-18), as depicted on Figure 2-1.
 - L2 – Southwest corner of Duffy Lane and Connor Drive to include up to 9 acres
 - L3 – Southwest corner of Connor Drive and Gateway Drive with the southern property line of the locational use area to intersect at that point southwest of the eastern driveway into the Polaris facility on Gateway Drive (APN 021-242-18) sufficient to provide for a code compliant driveway access into that site opposite said Polaris access.
 - L4 – That stretch of land along the east side of Nevada Pacific Pkwy north of the existing Southwest Gas facility (APN 021-242-14) to the south side of Gateway south of existing Polaris site (APN 021-242-18) and at a depth east of Nevada Pacific Parkway for a maximum depth of 500 feet.
- T Temporary Use – Permitted on a temporary basis if the use meets the standards established herein.
- € Not Permitted within the Development Plan (empty cell)

Where a particular use is not specifically listed in the Land Use Matrix table, the Administrator may assign the land use to a use category or use type that is substantially similar in character based on the purpose and intent of the land use designation and Land Use Plan in this Handbook,

as determined by the ARC. All uses shall require an administrative review or conditional use permit and approval process , as specified in Section 1.5 of this Handbook.

Land uses included within Table 2-1 (Land Use Matrix) shall follow the same definitions included within the City of Fernley Municipal Code unless defined differently within the table or within the handbook.

2.1.3 VICTORY MPA 1 LAND USE SPECIFIC DEFINITIONS

Transload Facilities (Solely to be provided by Master Developer)

This designation is for areas where material is moved between modes of transportation, such as from truck to rail. Materials and vehicles may also be stored at a transload facility while awaiting loading or unloading.

Switching Facilities (Solely to be provided by Master Developer)

This designation is for areas where rail cars are rearranged by a locomotive or other rail car mover. All cars within a switching facility are inspected for defects, and any necessary repairs are completed before departing the facility. Loaded or empty rail cars can also be stored in this area.

Table 2-1 – Land Use Matrix

A = Accessory/Ancillary Use P – Permitted by right C – Conditional Use L – Locational Allowed Use T – Temporary Use either Permitted by Right (P/L) or needing a Conditional Use Permit (C/L)	V-C	V-I
LODGING/SHORT TERM RENTAL USES		
Hotel/Motel (> 100 rooms) – ITE 11 th	P	
Recreational Vehicle Park	P	
COMMERCIAL/MIXED USE		
Animal Services		
Animal Services (indoor)	P	
Animal Services (overnight and/or outdoor)	C	
Financial Services		
Payday Loan Establishment	P	
Automated Teller Machine (stand-alone)	P	
Title Loan Establishment	P	
Financial Institutions	P	P/L
Pawnbroker	C	
Food and Beverage Sales/Service		
Bar/Lounge	C	
Drive-Through Facilities	C	C/L
Grocer/Food Market	P	
Liquor Store	C	

A = Accessory/Ancillary Use P – Permitted by right C – Conditional Use L – Locational Allowed Use T – Temporary Use either Permitted by Right (P/L) or needing a Conditional Use Permit (C/L)		
	V-C	V-I
Food Preparation (includes cafeterias)	P	A
Mobile Vendor	T	T
Restaurant (with or without alcohol sales)	C	P/L
Tasting Room/Brewery/Distillery	C	C/L
Office, Business and Professional		
Office		P
Call Center		P
Personal/Business Services		
Bail Bond Services	C	
Copy Center	P	P
Courier and Messenger Services	P	P
Maintenance and Repair Services	P	P
Personal Services	P	
Retail Sales		
Auction House	P	C
Building Materials Sales and Services	P	P
Convenience Store	P	C/L
Non-Store Retailers	C	A
Nursery (commercial, retail, and wholesale)	P	T

A = Accessory/Ancillary Use P – Permitted by right C – Conditional Use L – Locational Allowed Use T – Temporary Use either Permitted by Right (P/L) or needing a Conditional Use Permit (C/L)		
	V-C	V-I
Retail (general)	P	P/L
Vehicles/Equipment		
Auto and Truck Repair (light)	C	A
Auto and Truck Repair (heavy)	C	P
Car Wash	P	A
Equipment Sales and Rentals	P	P
Gas Station	C	C
Travel Center	P	
Vehicle Sales	C	
Vehicle Rentals	C	A
PUBLIC/CIVIC/INSTITUTIONAL USES		
Assembly Uses		
Funeral and Internment Services	C	
Crematorium	C	
Church or Worship Center	C	
Event Center/Banquet Hall	C	
Exhibition/Convention/Conference Facility	C	C
Fraternal Club/Lodge/Community Service Facility	C	
Day Care		

A = Accessory/Ancillary Use P – Permitted by right C – Conditional Use L – Locational Allowed Use T – Temporary Use either Permitted by Right (P/L) or needing a Conditional Use Permit (C/L)		
	V-C	V-I
Adult Day Care	P	
Child Care Facility	P	A
Educational		
College/Technical School	C	C
School (public or private)	C	
Personal Instructional Services	P	A
Government/Non-Profit		
Public Maintenance Facility	P	P
Public Safety Facility	P	P
Social Assistance/Welfare/Charitable Services	C	
Medical		
Hospital	C	
Medical Office/Clinic/Urgent Care/Laboratory (up to 10,000 SF of GFA)	p	P/L
Medical Office/Clinic/Urgent Care/Laboratory (greater than 10,000 SF of GFA)	C	C/L
Medical Marijuana Production/Cultivation		C
Medical Marijuana Establishment	C	
Recreation, entertainment, and Arts		
Cultural Institution	C	
Gaming Establishment(non-restricted)	C	

A = Accessory/Ancillary Use P – Permitted by right C – Conditional Use L – Locational Allowed Use T – Temporary Use either Permitted by Right (P/L) or needing a Conditional Use Permit (C/L)		
	V-C	V-I
Entertainment Facility/Theater	C	
Health/Fitness Club	P	A
Park/Open Space		A
Recreation Facility (minor)	C	A
Recreation Facility (major)	C	
INDUSTRIAL USES		
Manufacturing and Employment		
Contractor Shop		P
Data Processing, Hosting, and Related Services (including data centers)		P
Industrial Services		P
Medical Production)		P
Production (craftwork)	C	P
Production (general)		P
Research and Development	P	P
Warehousing, Storage, and Distribution		
Building and Landscaping Materials Supplier		P
Building Maintenance Services		P
Freight Facilities (excluding rail services)		C
Fuel Distribution or Recycling		C

A = Accessory/Ancillary Use P – Permitted by right C – Conditional Use L – Locational Allowed Use T – Temporary Use either Permitted by Right (P/L) or needing a Conditional Use Permit (C/L)	V-C	V-I
Machinery and Heavy Equipment Sales/Rental/Service		P
Mini-Warehouse	C	C/L
Oil and Gas Storage		C
Outdoor Storage		T
Storage/Processing of Hazardous Materials		C
Switching Facilities (solely to be provided by master developer)		P
Transload Facilities (solely to be provided by master developer)		P
Vehicle Towing and Storage Facility		C
Wholesale Distribution, Warehousing, and Storage		P
INFRASTRUCTURE		
Communications Facility		
Communications Facility	P	P
Wireless Communication Tower/Antenna	P	P
Weather/Environmental Monitoring Station	P	P
Transportation/Parking		
Ground Passenger Transportation (e.g. taxi, charter bus)		A
Heliport/Miscellaneous Air Transportation		C
Parking Facility	A	A
Transportation Passenger Terminal	P	A

A = Accessory/Ancillary Use P – Permitted by right C – Conditional Use L – Locational Allowed Use T – Temporary Use either Permitted by Right (P/L) or needing a Conditional Use Permit (C/L)	V-C	
		V-I
Utilities		
Co-Generation Facility	C	C
Utility (major)	C	C
Utility (minor)	P	P
Renewable Energy Production		C
Waste Related		
Recycling Plant		C
Remediation Services		C
Transfer Station		C

2.2 ROADWAY DEVELOPMENT STANDARDS

2.2.1 ACCESS STANDARDS

No final specific layouts or users are identified with this Development Handbook. Design of access points for individual buildings will comply with the most current version of the City of Fernley Access Management Policy. Access location points will be determined on a per building basis to allow for proper ingress and egress of future users.

ADA connectivity will be provided between ADA parking, building public entrances, and the roadway multi-use path corridors

2.2.2 ROADWAYS

The arterial and collector streets of Victory MPA 1 have been designed to accommodate anticipated traffic volumes for industrial uses as well as incorporating an offset sidewalk area for pedestrian traffic. There are three primary roadway sections within Victory MPA 1: an 84-foot right-of-way (Minor Arterial), 62-foot right-of-way (Commercial), and a 37-foot right-of-way section (Access Road). There will be no irrigation or landscaping within the city right-of-way.

A backbone roadway network has been established within Victory MPA 1 which will provide direct access to all anticipated future parcels to be created. Figure 2-2 depicts this roadway network with anticipated lengths of each category of roadway to be constructed. All Minor Arterial and Collector sections will include an 8-foot-wide asphalt paved sidewalk on one side of the road which will provide an interconnected trail system throughout the park. Streets are color coded to match the anticipated roadway sections and are described herein.

Parking demand will be provided on-site per City Code for both trailer and auto parking. On-street parking will not be permitted along major arterial, minor arterial, and collector roadways. The CC&R's associated with Victory MPA 1 prohibit on street parking within the subdivision.

All intersections will be designed to allow proper turning radii for a WB-67 truck and sight lines per AASHTO criteria. Appendix A shows detailed turning movements for all intersection types within Victory MPA1.

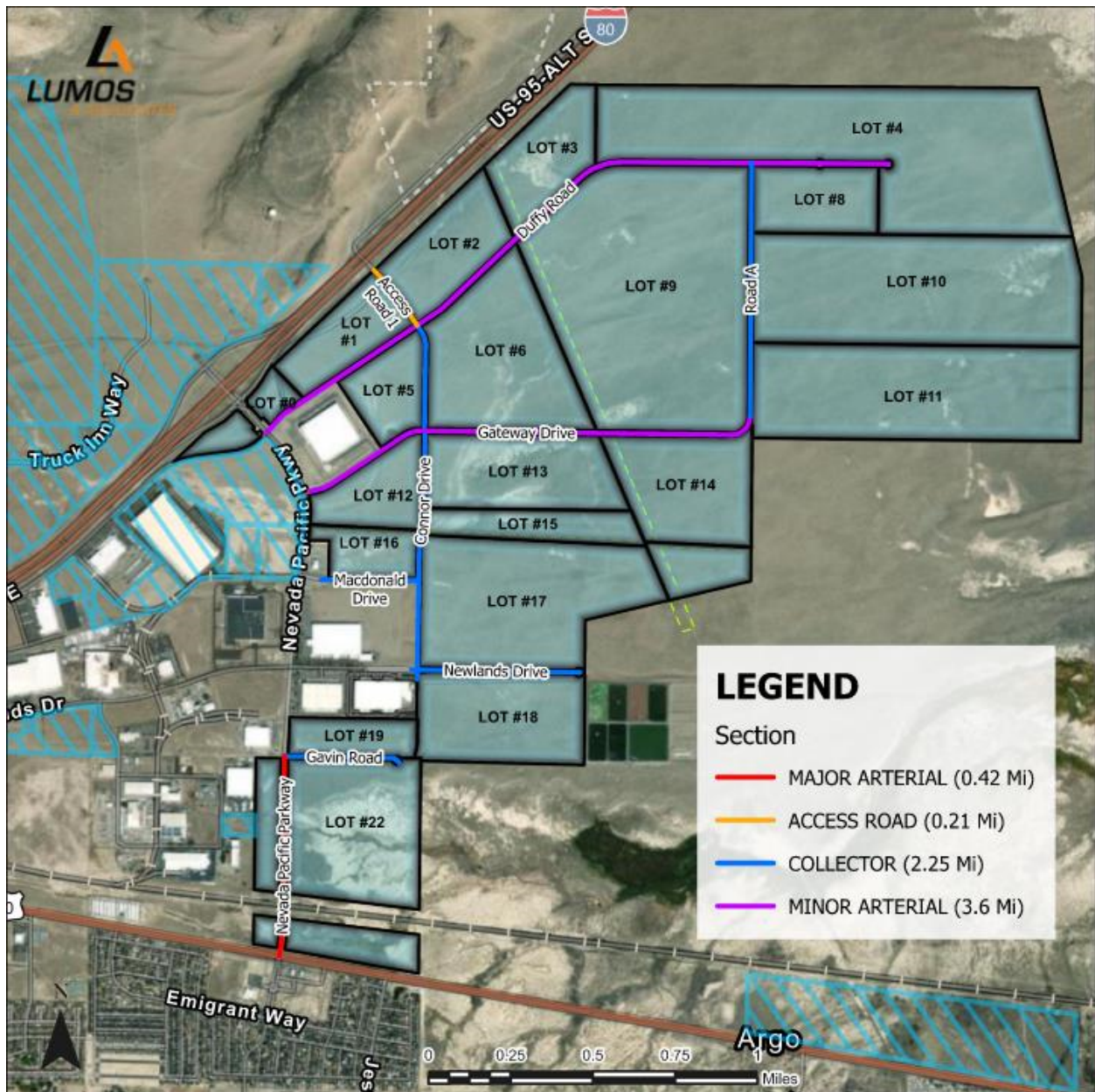
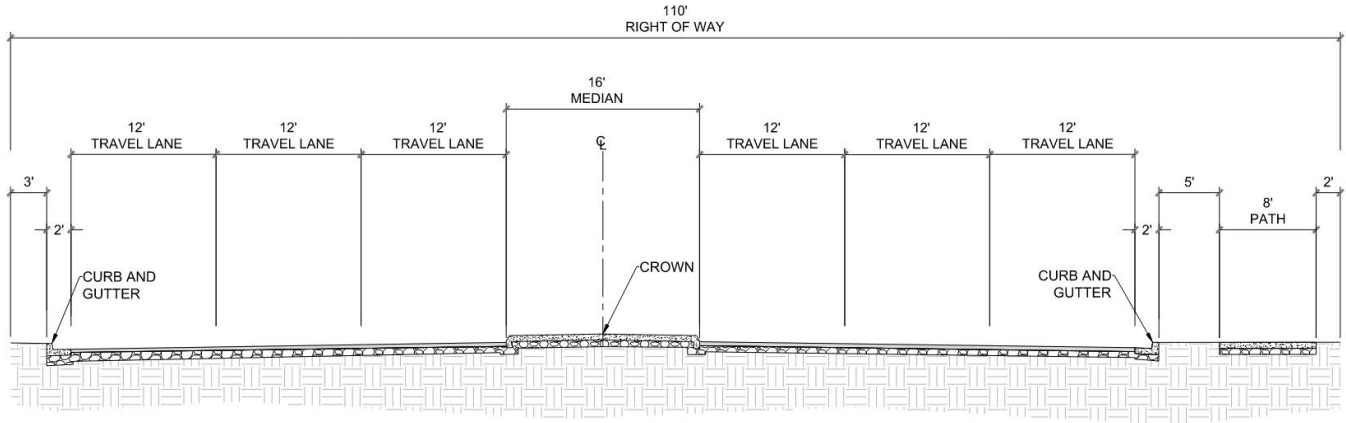


Figure 2-2 – Victory MPA 1 Backbone Roadway Network

2.2.2.1 110-FOOT RIGHT-OF-WAY SECTION (MAJOR ARTERIAL)

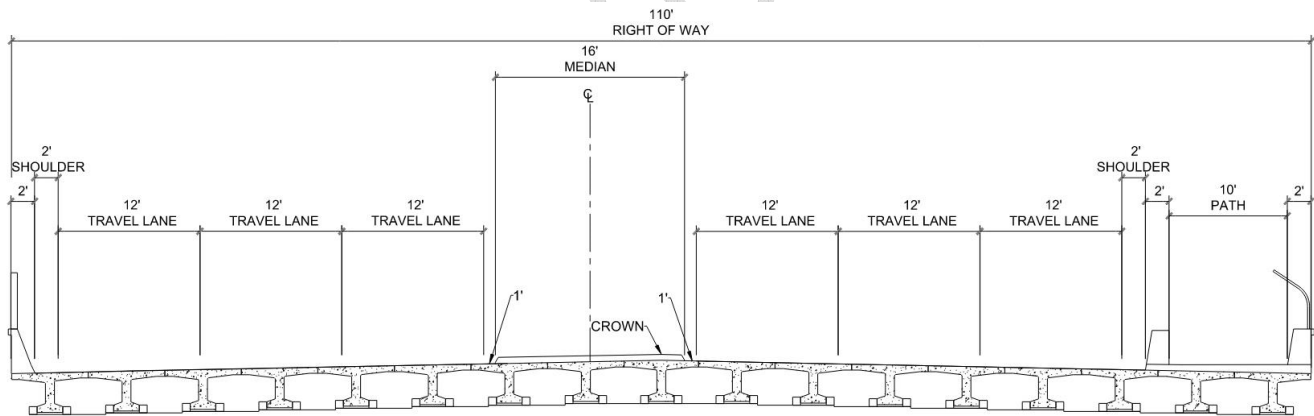
The largest roadway section within Victory MPA 1 includes a 110' right-of-way width (Nevada Pacific Parkway) and will be classified as a Major Arterial roadway. At full buildout, this roadway will have six 12-foot travel lanes, a 16' median, and an 8-foot multi-use path on one side of the roadway. This portion of Nevada Pacific Parkway will also have a bridge section for approximately 400 feet of the overall length of roadway. Lane widths on the bridge could be reduced to 11-foot wide lanes if necessary for flexibility in future

buildout conditions. Figure 2-3 (below) depicts the 110' Road ROW section. Figure 2-4 (below) depicts the 110' Bridge ROW section.



NEVADA PACIFIC PARKWAY 6-LANE SECTION

Figure 2-3 – 110' Road ROW Section (Major Arterial)



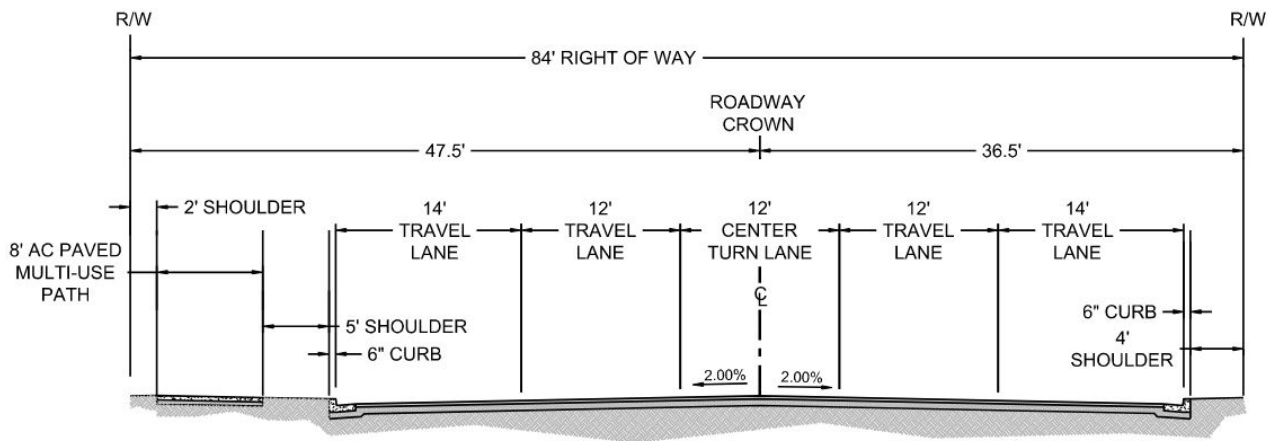
NEVADA PACIFIC PARKWAY 6-LANE BRIDGE SECTION

Figure 2-4 – 110' Bridge ROW Section (Major Arterial)

2.2.2.2 84-FOOT RIGHT-OF-WAY SECTION (MINOR ARTERIAL)

The next largest roadway section within Victory MPA 1 includes an 84' right-of-way width (Duffy Road, Gateway Drive) and will be classified as a Minor Arterial roadway. This roadway includes two 14-foot travel lanes, two 12-foot travel lanes with a 12-foot center turn lane. An 8-foot asphalt concrete paved multi-use path is included on one side of the

roadway. Speed limits will be set to 35 mph on all Minor Arterial roadways. Figure 2-5 (below) depicts the 84' ROW section.

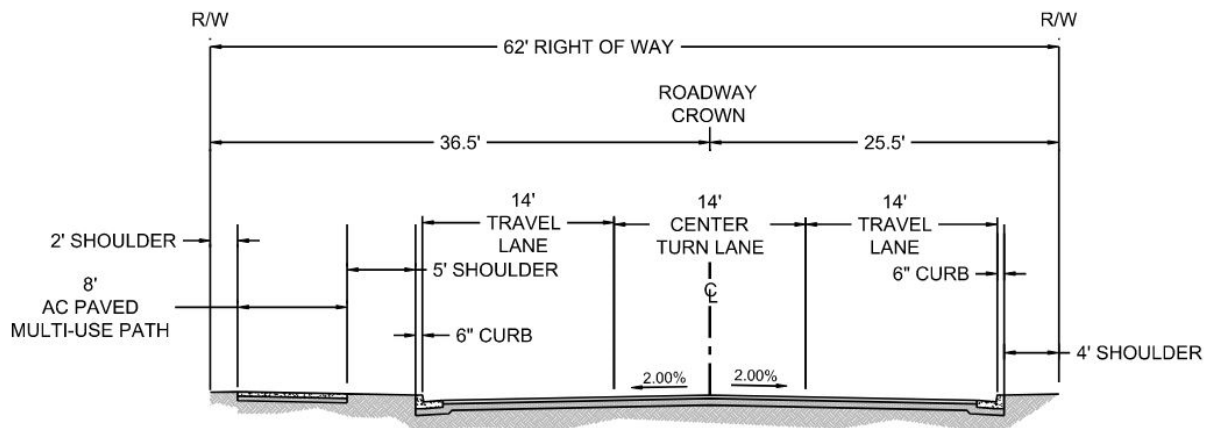


DUFFY ROAD, GATEWAY DRIVE

Figure 2-5 – 84' ROW Section (Minor Arterial)

2.2.2.3 62-FOOT RIGHT-OF-WAY SECTION (COLLECTOR)

The majority of the roads within Victory MPA 1 will utilize a 62'-foot ROW section (Connor Drive, Road A, Macdonald Drive, Gavin Road, Newlands Drive) and will be classified as a Collector roadway. This roadway includes two 14-foot travel lanes along with a 14-foot center turn lane. The section incorporates an 8-foot asphalt concrete paved multi-use path on one side of the roadway. Speed limits will be set to 30 mph on all Collector roadways. Figure 2-6 (below) depicts the 62' ROW section.



CONNOR DRIVE, ROAD A, MACDONALD DRIVE,
GAVIN ROAD, NEWLANDS DRIVE

Figure 2-6 – 62' ROW Section (Collector)

2.2.2.4 62-FOOT RIGHT-OF-WAY SECTION (ACCESS ROAD)

A limited section of roadway will utilize a 62' ROW section (Access Road 1) and will be classified as an Access Road with a 28' wide pavement section and no sidewalk. This portion of the roadway system does not tie into the inner park area and will exclude the concrete sidewalk. Speed limits will be set to 25 mph on all roadways designated as Access Roads. Figure 2-7 (below) depicts the 37' ROW section.

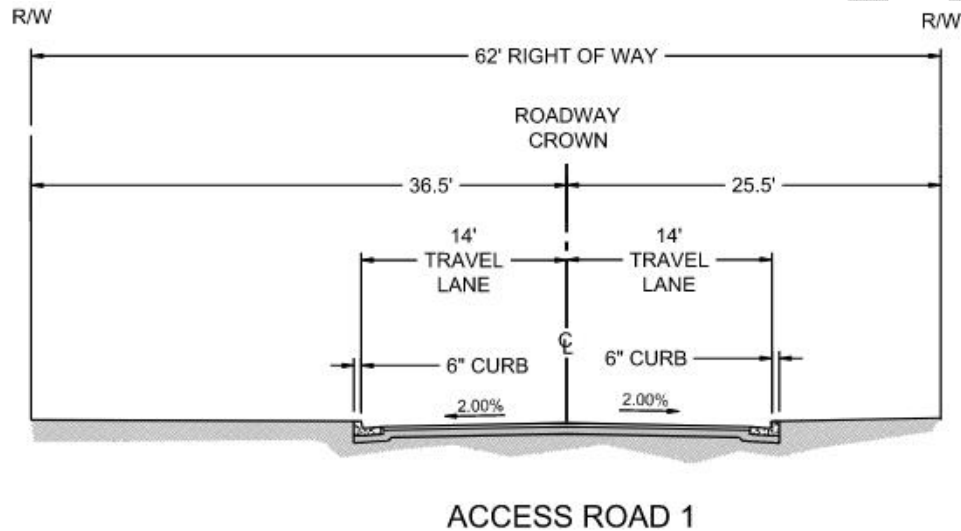
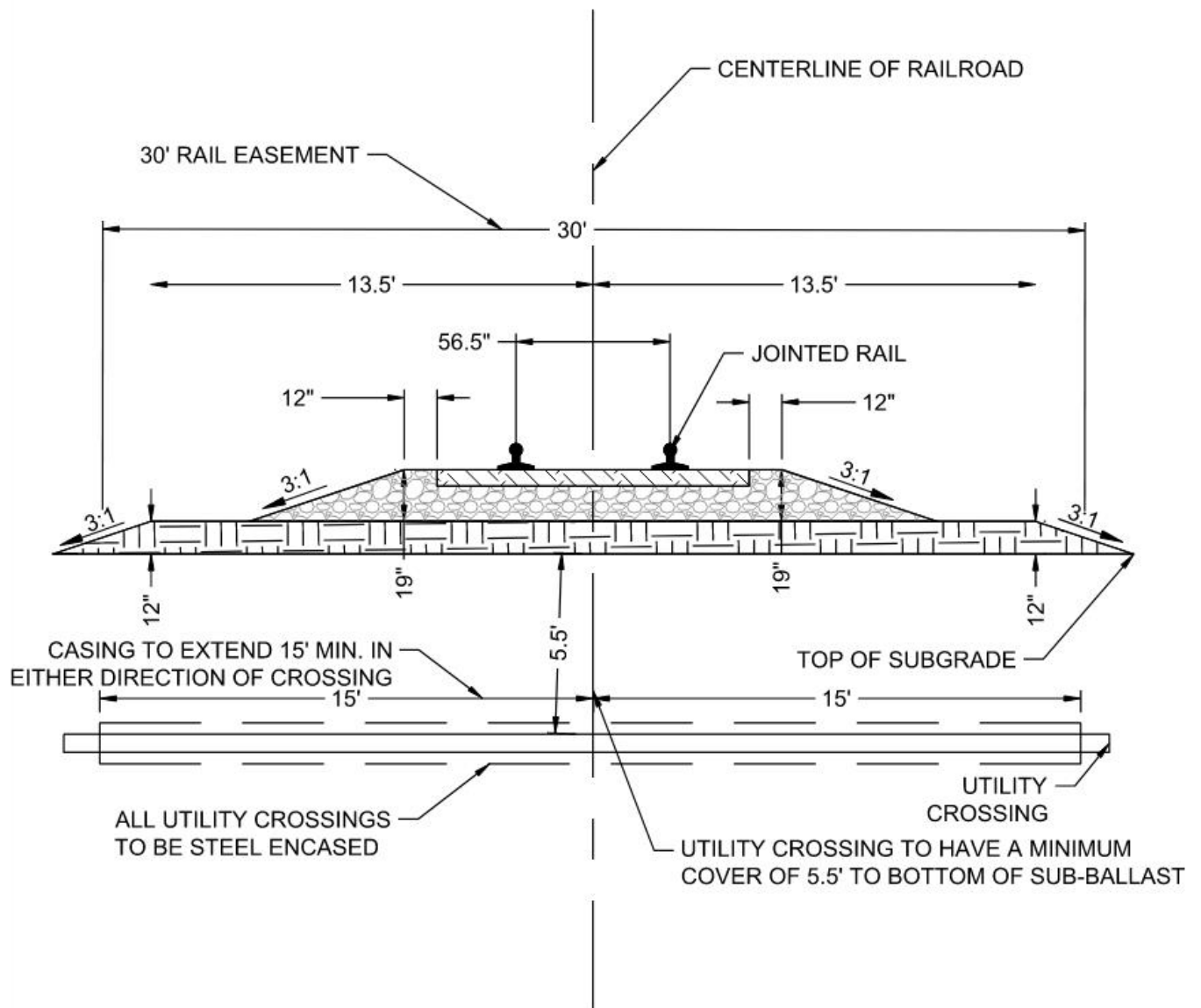


Figure 2-7 – 62' ROW Section (Access Road)

2.2.3 RAIL

The rail within Victory MPA 1 will be privately owned and managed. All rail will conform to Union Pacific Railroad (UPRR) standards of design and will utilize standard cross sections, encasement, and utility crossing standards as defined by UPRR. Encasement of utilities will be required within 15 feet of either side of the centerline of rail, with minimum depths per UPRR standards. Transload and switching facilities will be constructed per industry standards. Figure 2-8 (following page) depicts the Victory MPA 1 standards of design. All rail crossings of utilities shall have a spare casing installed to accommodate future utility installations or utility maintenance and upgrades. Any new rail installation which crosses existing utilities shall relocate the utility into a new casing.



LEGEND



BALLAST



SUB-BALLAST

Figure 2-8 – Victory MPA1 Utility Crossing Standards

Figure 2-9 below shows the phasing and extents of the rail system that is anticipated at full buildout, as well as the anticipated crossings of existing and future utilities. The rail buildout schedule and timeline will be tenant driven north of the transload facility. It is anticipated that all

rail between the UPRR main line connection and the transload facility will be built concurrently with Phase I infrastructure. Any at-grade crossings will be in conformance with UPRR standards.

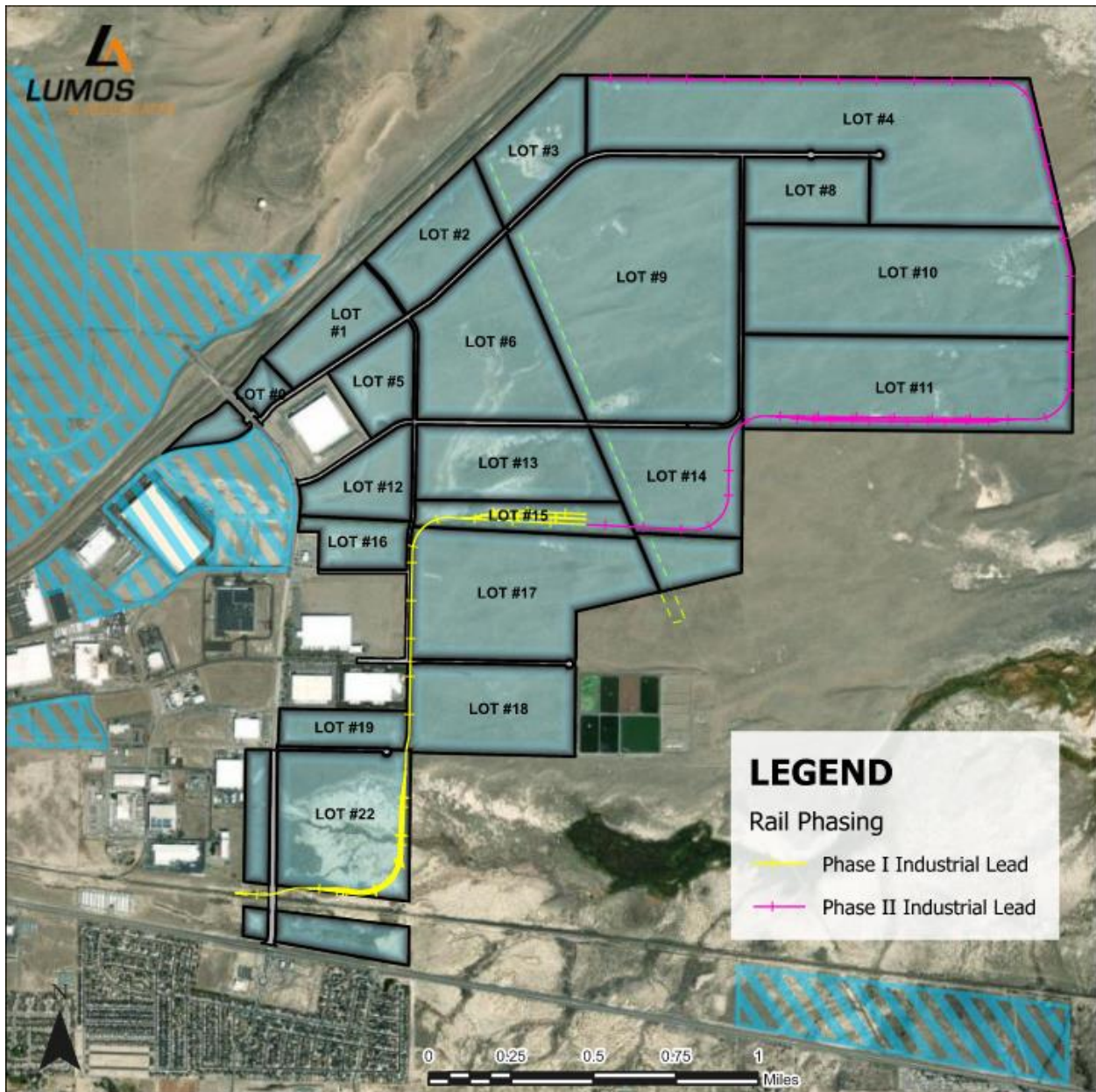


Figure 2-9 – Victory MPA 1 Rail Phasing Diagram

2.3 LANDSCAPE AND IRRIGATION STANDARDS

2.3.1 PURPOSE

This section promotes the public health, safety and general welfare by establishing regulations for the installation and maintenance of landscaping according to recognized resource-efficient principles, and to provide for the protection of existing vegetation, where appropriate. The regulations:

- Enhance the aesthetics of the community;
- Conserve water and other natural and energy resources by requiring the use of resource-efficient guidelines and principles;
- Provide environmental controls such as, but not limited to, the reduction of noise, dust and erosion;
- Reduce air pollution by encouraging the use of vegetation for air filtration, absorption of carbon dioxide and production of oxygen;
- Reduce visual pollution which might otherwise occur within an urbanized area;
- Encourage a balanced and sustainable landscape approach utilizing xeriscape principles/methods.

2.3.2 APPLICABILITY

Landscape standards contained here in apply to:

- a. All new development projects within Victory MPA 1.
 1. Exception – Instances in which higher security measures demand elevated levels of visibility in sight lines and security cameras and diminished access points such as those measures that may be required for data centers or other users that have a demonstratable need for such heightened security measures. In such instances any such user shall submit plans to the ARC that purport to reliably identify the requested instances and justify the deviations such that the ARC can render an informed judgement that does not unreasonably deny any such user the ability to undertake measures that conform appropriate industry protocols.
- b. An expansion to any existing building, when not in conformance with the minimum landscaping requirements shall provide a proportionate amount to the expansion.
- c. Exceptions. Landscape and Irrigation section does not apply to:
 1. Permits such as, but not limited to, reroofing, siding, temporary power, change of electrical service, change of furnace, mobile home/job trailer set-up, addition of interior plumbing, addition of interior electrical, fencing, on and off-premises signs and encroachment.
 2. Development projects where the existing vegetation to be retained meets or exceeds the requirements of this section.

2.3.3 LANDSCAPE AND IRRIGATION PLANS

Landscape and irrigation plans shall be provided in accordance with the standards outlined below:

- a. The landscape plan shall be prepared by a landscape architect registered in the State of Nevada, or other person permitted to prepare landscaping plans pursuant to NRS Chapter 623A.
- b. The landscape and irrigation plan shall be neatly drawn at a convenient commonly used engineering or architectural scale. Two prints of the plan shall be furnished to the administrator.
- c. The landscape plan shall include the following information:
 1. Scale, north arrow, location of adjacent streets, property lines, easements, sidewalks, drives, paved areas, utilities, buildings, existing trees (including street trees), and any other natural or manmade site features influencing the use of the site;
 2. Construction details pertinent to installation of the landscape in accordance with city standards.
 3. A note or calculation sheet with all landscape calculations relevant to the application of this section.
 4. A plant list giving the common and botanical names of plants to be used. This plant list shall be arranged in legend form with a key number or symbol assigned to each plant. On the plan, each plant shall be identified by a key number or symbol. The size of the plant and the quantity to be used shall follow the legend, as the following example illustrates:

Example Plant List:

Botanical Name	Common Name	Size	Quantity
Coreopsis grandiflora	Coreopsis	Flat	144
Celtis occidentalis	Common Hackberry	1" cal.	9
Cytissus peraeocox	Warminster Broom	1 gal.	27
Buddleia davidii	Butterfly Bush/Summer Lilac	5 gal.	5
Hedera Helix "Baltica"	Baltic Ivy	Flat	72
Robinia idahoensis	Idaho Locust	2" cal.	10
Cedrus deodara	Deodar Cedar	5' height	12
Artemisia tridentata	Big Sagebrush	1 gal.	20

- d. Irrigation plans (at the same scale as the landscape plans), and specifications which comply with the Uniform Plumbing Code, ensure the correct irrigation coverage and include the following:
 1. Scale, north arrow, locations of adjacent streets, property lines, easements, sidewalks, drives, paved areas, buildings, including street trees, and any other natural or man-made site features influencing the use of the site.
 2. Identification and description of automatic irrigation components to ensure that vegetation is adequately serviced through water conserving features.
 3. Indication of the system point of connection and size, water pressure available, and each zone's maximum demand of the system in gallons per minute.
 4. Irrigation equipment specified must be identified by manufacturer's name and equipment description sufficient for identification.
 5. Cross connection devices shall have reduced pressure backflow preventer (R.P. Device).
 6. Show locations of irrigation valves, controllers, hose bibs, quick coupler valves, sprinkler heads, and backflow preventers. Sprinkler location on plans shall also include pattern of sprays (i.e., full circle, half-circle), psi, and gallons per minute per zone.
 7. Irrigation details must be used to clarify particular situations. Typical details should include backflow prevention devices, valves, irrigation heads, and irrigation controllers.
 8. Sizes of irrigation lines. Schedule 40 P.V.C. is required for all pressure lines and under all paved areas. Piping must be installed a minimum of 12 inches underground for non-pressure irrigation lines and 18 inches underground for constant pressure irrigation lines. Adequate freeze protection shall be provided. Schedule 40 P.V.C. or equivalent sleeving under sidewalks or driveways is recommended.
 9. Landscape irrigation shall be separately metered.
 10. A recommended irrigation system operation schedule that includes four seasonal changes shall be required by the installer.
- e. The administrator may require other relevant information such as, but not limited to, elevations, sections and construction details, necessary to provide an accurate description of the work to be performed.

2.3.4 GENERAL LANDSCAPE STANDARDS

- a. Landscape elements shall provide a vertical dimension. This can be accomplished with the use of tall shrubs, landscape boulders, etc., and accented with tree plantings, consistent with a xeriscape theme.
- b. Landscaping around the foundation base of the office nodes of buildings, excluding truck courts/ loading docks, shipping & receiving, ramp, stair, or pedestrian access areas, is recommended to enhance the edge between the parking lot and the structure.

- c. Landscaping shall be protected from vehicular and pedestrian encroachment.
- d. All landscape planters shall be protected by a minimum six-inch high concrete curb.
- e. All ground surfaces shall have one or more of the following treatments:
 - 1. Paving and/or decorative hardscape
 - 2. Artificial turf
 - 3. Decorative rock.
 - 4. Decomposed granite with a pre-emergent herbicide.
 - 5. Other similar ground surface mulch as approved by the ARC.
- f. Landscaping shall be sited so that at maturity the plants do not inhibit visibility in any sight triangle.
- g. Planting islands within passenger vehicle parking lots shall have a minimum width of five feet interior, protected by six-inch high curb. Diamond planters around the base of trees may be substituted for traditional planting islands.
- h. Landscape islands shall not be required within truck courts, truck parking & container storage.
- i. Areas disturbed by grading activity that do not include permanent structures, pavement, parking areas, or landscaping shall be revegetated with an appropriate northern Nevada dryland seed mix or rock-based ground cover.
- j. All landscaping materials shall aesthetically enhance and be environmentally compatible with the site area. Insofar as is practical, the trees used shall represent a mixture of deciduous and coniferous varieties.
- k. Include landscaping in all setback areas from public or private streets.
- l. The minimum number of trees to be planted in the required landscape area is one tree per 500 square feet of required landscape area in all Victory MPA 1 land use districts. Parking area trees per section 2.3.5 are in addition to this requirement.
- m. Evergreen trees shall be at least six feet in height at time of planting. Fifty percent of deciduous trees shall be a minimum caliper of one inch and 50 percent shall be a minimum caliper of two inches at time of planting.
- n. Existing trees and shrubs may be incorporated into a landscaped area if they are healthy and in good condition and do not conflict with plant location requirements of this section (such as in parking areas).
- o. The minimum number of shrubs to be planted in the required landscape area is one shrub per 50 square feet. Sixty percent of container-grown shrubs and plants shall be a minimum five-gallon size and the remainder shall be minimum one-gallon size at time of planting, excluding trees-and those plants grown in flats.
- p. Turf grass shall be subject to the following:

1. The maximum slope of an area planted in turf grass is four to one (4:1).
 2. Turf grass is not required and may not constitute more than 80 percent of the required landscape area.
- q. Ground covering shall be provided over the entire landscape area to prevent erosion, inhibit weed growth, and to present an aesthetically pleasing appearance. Ground covering may include:
1. Living plants, such as shrubs, turf grasses, vines, or other living ground covers. Ornamental grasses and shrubs need to be 30 inches in height at maturity.
 2. Decorative rock, pavers, rock mulch, boulders, decomposed granite or other non-living materials may also be used.
- r. The following types of trees are prohibited in landscaping as required by this section because of undesirable characteristics: Populus genus (poplars and cottonwoods), salix genus (willows), ulmus genus (elms) and zelkova genus (zelkova).
- s. If specimens of these trees exist on a site to be landscaped, they may be retained and counted towards the required number of trees.
- t. All landscaped areas shall be watered by a water-conserving irrigation system including drip, low-arching and/or low-gallage heads, as appropriate, controlled by an automatic timer.

2.3.5 PARKING AREA LANDSCAPING

- a. Passenger vehicle parking area landscaping is in addition to other required landscaping. Except for the impact of security measures at Section 2.3.2, above. The parking area is subject to the following minimum standards:
1. At least one shade tree shall be planted for each seven parking spaces for parking lots under 125 spaces in size. For those over 125 spaces, at least one shade tree shall be planted for each ten parking spaces.
 2. All landscaping within passenger vehicle parking areas (except truck parking and trailer storage) shall be surrounded by curbing at least six inches in height and four inches in width. Due to the large turning radius of trucks and the general pattern of movement in truck courts and parking, no interior curbs (landscape islands) will be required in truck parking courts.

2.3.6 BONDING REQUIREMENTS

- a. All landscaping material for a development project shall be installed in accordance with the landscape plan. A surety bond is required if the landscaping cannot be satisfactorily installed at the time a certificate of occupancy or business license is requested. The bond shall be written by a surety company authorized to do business in this state, to be filed with the city clerk prior to issuance of a certificate of occupancy.
- b. In lieu of filing a surety bond, cash, a cashier's check, or a letter of credit issued by a bank licensed in this state may be filed with the city clerk.

- c. The bond, cash deposit, cashier's check or letter of credit shall be in an amount sufficient to ensure the installation of all required landscaping as required by this section.
- d. The administrator shall inspect the landscaping to insure proper installation according to the approved landscape plan.
- e. The bond, or equivalent surety, will not be released until final approval of the landscaping.
- f. If the landscaping material is not installed in accordance with the landscape plan, the administrator may cause the bond, cash deposit, or letter of credit to be forfeited in an amount necessary to complete the installation. The administrator may waive the surety requirement.

2.3.7 MAINTENANCE

- a. If any portion of the landscaping material or irrigation equipment is damaged or destroyed, the owner, operator or other person in control of the development project shall replace or repair the damage or injury within 90 days following notification from the administrator. If the season of the year makes this repair or replacement infeasible within the 90-day period, the person responsible for the landscaping shall schedule an appropriate time for the accomplishment of this work with the ARC.
- b. If the repair or replacement is not accomplished in a timely fashion, the ARC may request that the City initiate proceedings to revoke the conditional use permit or business license for the subject use.

2.4 TRASH ENCLOSURES AND MECHANICAL/EQUIPMENT SCREENING

2.4.1 TRASH ENCLOSURES

- a. Trash enclosures shall allow convenient access from each tenant.
- b. Trash enclosures shall be constructed to be architecturally compatible with the project. All trash enclosures shall be treated with anti-graffiti material. The trash enclosure shall be constructed to complement building materials used in the design of the building(s) and include gates for screening.

2.4.2 MECHANICAL EQUIPMENT SCREENING

- a. To the extent possible, Switch boxes, transformers, electrical and gas meters, including ground mounted air conditioning units and other above ground or building mounted utility elements (including antennas or satellite disks but excluding power substations which shall conform to prescribed design standards established by NV Energy, shall be screened or located out of view from public roads, driveways and common public areas, such as exterior entrances.
- b. For buildings with perimeter walls less than 30 feet in height, All roof-mounted equipment shall be screened with a parapet from adjacent properties, public rights-of-way, and driveways/common areas within project. The screening elements shall be designed to be compatible with building architecture.

2.5 WALLS

The following standards shall be used for the consistent design of perimeter walls, where provided:

- a. Walls shall be decorative using materials and colors to complement the architectural design of the adjacent buildings/development theme as approved by the ARC.
- b. Walls shall incorporate at least one of the following every 265 linear feet:
 1. At least a two-foot change in plane for at least ten feet;
 2. Use of a pilaster at 265 foot intervals, on property corners, or at changes in wall planes
- c. The maximum height of rockery walls is six feet.

2.6 MAINTENANCE

Landscaping located within a median inside the right-of-way (if any) shall be maintained by landscape maintenance association (“LMA”) established by the Master Developer for instances of shared landscape not allocable to a single user building(s) or ownership such as clusters of buildings. Such an entity shall be responsible for the ongoing maintenance of any such LMA areas, provided that such landscape areas are not otherwise within the maintenance obligations of a given building or cluster of buildings as may be established by the Master Developer. Landscaped buffers/setbacks/easements adjacent to arterial and collector roadways that are not allocable to a single user building(s) shall be maintained by a landscape maintenance association (“LMA”) or in the absence of an LMA, an appropriately formed and empowered owners association.

The Master Developer may choose to create separate parcels for landscape buffers, detention/retention basins, etc. In such instances, such parcels shall be dedicated to an LMA. Areas to be maintained by any LMA may also be within easements created on given parcels within Victory MPA 1. Landscape located within the right-of-way (if applicable), landscape buffer parcels, and easements adjacent to all other roadways may be maintained by such an LMA in the event that the same are not otherwise included in the maintenance obligations established by Master Developer for any building or cluster of buildings. In instances where they cannot be allocated to a specific parcel, the Master Developer may create easements that provide for maintenance obligations that may be assigned to separate or logical clusters of parcels within Victory MPA 1.

The City of Fernley shall be responsible for the maintenance of all public sidewalks within the public right-of-way or within parcels dedicated for public use such as trails.

2.7 STREET LIGHTING

The lighting for Victory MPA 1 will utilize NV Energy and City of Fernley approved poles and luminaires. Major intersections, and marked crosswalks will be illuminated with City of Fernley and NV Energy approved poles and luminaires. Lighting located within the right-of-way will be installed by the Master Developer or parcel developer and maintained by NV Energy (for standard poles/fixtures). Power usage invoices for lighting located within the public right-of-way shall be paid by the City of Fernley. Figure 2.10 depicts the typical locations for street lighting at intersections and crosswalks in Victory MPA 1.

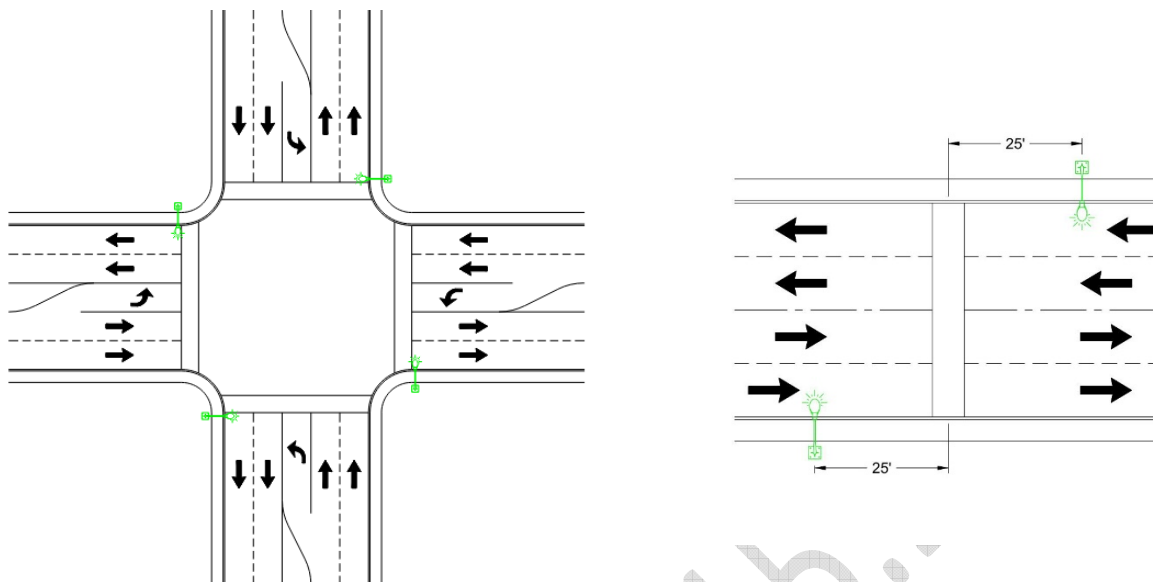


Figure 2-10 – Victory MPA 1 Typical Street Lighting at intersection and crosswalks

2.7.1 ARTERIALS, COLLECTORS, AND LOCAL STREETS

The following general lighting requirements shall apply within Victory MPA 1:

- a. Lighting fixture types shall be of a consistent scale, design and color along street corridors
- b. Street lighting shall be directionally shaded (or otherwise mitigated) to reduce offsite fugitive light and glare.
- c. Placement of street lights shall be at all major intersections and marked crosswalks along the major arterial, minor arterial, and collector roadways.

2.8 ACCESS TO EXISTING CITY FACILITIES

Improvements within Victory MPA 1 will create new access points to the City of Fernley's EWWTP facilities. Previous access occurred through the unimproved portion of Gavin Road and continued on the south property line of Mark IV holdings. Roadway improvements to Gavin Road and the extension of Newlands Drive will modify where daily access by City staff occurs. The Gavin Road access route will no longer be the main access to the EWWTP. The main access to EWWTP will be located at the eastern terminus of the extended Newlands Drive as shown in Figure 2-11 below. This will include a 20' paved access from Newlands Drive into the EWWTP parcel. A new 24' wide gate will be installed at the existing fenceline, and a 20' wide gravel improved road will be continued on the EWWTP property to tie into existing drive aisles within the plant.

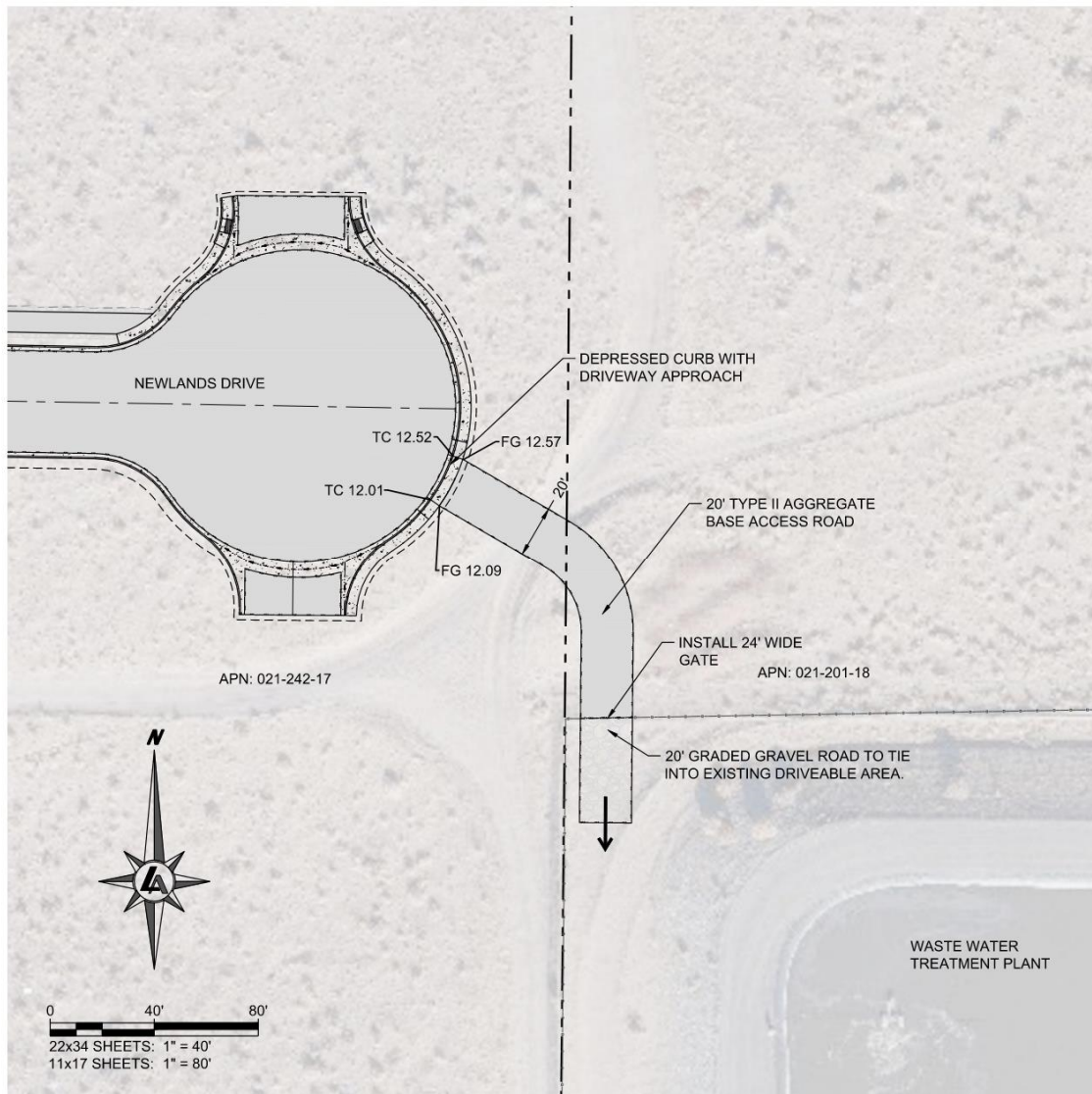


Figure 2-11 – Newlands Drive EWWTP Access

CHAPTER 3 DESIGN STANDARDS AND GUIDELINES

3.1 PURPOSE AND COMPLIANCE

The purpose of this chapter is to establish a baseline qualitative design standard through the use of design parameters to which developers of individual buildings in Victory MPA 1 must conform. This ensures that each individual project will align with the character and vision outlined for Victory MPA 1. The standards and guidelines in this chapter will shape the development of the various land use areas by providing specific design criteria for building orientation, lighting, signs, walls and fences, and other design elements integral to creating development projects that fit into the project theme.

Architectural standards and guidelines are also provided to ensure buildings within Victory MPA 1 achieve high quality measures of contemporary aesthetic design and high-quality engineering that deliver top of market functional specifications. The pictures contained in this Chapter are provided to as examples of the consistent high-quality look that the Master Developer intends to achieve yet are not intended to restrict the design features to the specific design features depicted in the photos.

It is the primary responsibility of the ARC to determine a project's compliance with this chapter during the administrative review processes.

3.2 SITE PLANNING STANDARDS AND GUIDELINES

The purpose of the site planning standards and guidelines is to address general provisions of site development which include building orientation, grading and drainage, parking areas, lighting, signs, walls and fences, and service areas. Site planning controls the proper placement of buildings and internal roads that service and access the various uses in the project.

3.2.1 BUILDING ORIENTATION

- a. Provided that sufficient truck court depth and building cross dock depths can be achieved, the higher architectural detail such as office nodes shall be oriented to afford view corridors to public rights-of-way.
- b. Building layouts shall provide pedestrians with convenient and safe access to buildings from sidewalks and parking areas. See example on following page.



3.2.2 GRADING AND DRAINAGE

- a. Grading will be undertaken to maximize the accessibility of each site with the proposed master plan infrastructure
- b. Mass cut and fill slopes (if any) shall be limited, when feasible, to retain a natural slope appearance in compliance with the City of Fernley Municipal Code Sections 32.09.070 and 32.09.130.
- c. To the extent practical, graded slopes shall be rounded resulting in smooth, harmonious transitions between the man-made terrain and the natural terrain.
- d. Finished grades at individual parcel boundaries shall meet existing grade within the landscaped area or a slope easement shall be created on the adjoining undeveloped property to be matched when that site develops.
- e. Vegetated slopes shall not exceed an average of 2:1 slope and turf areas shall not exceed an average 4:1 slope.
- f. Plantings within graded areas shall be designed to achieve effective ground coverage of any disturbed area within three years. All areas disturbed by grading that are not in landscaped areas will be revegetated with best management practices.
- g. All graded slopes shall be revegetated prior to building occupancy. If climatic conditions or other circumstances prevent planting at the time of occupancy a bond shall be provided for landscaping during the subsequent growing season or other arrangements made for revegetation, subject to the approval of the ARC. Drought tolerant plant species (refer to landscape standards in Chapter 2) shall be utilized to help minimize erosion.
- h. The developer shall submit an erosion control plan with each grading plan.

- i. The developer shall submit a grading plan for any phase of the project to the City of Fernley for approval. Prior to the issuance of a grading permit for the development, the developer shall post a surety bond for re-grading and reclamation as well as proof of a storm water discharge permit from the Nevada Department of Environmental Protection. A surface area disturbance permit from the NDEP is required if disturbance is over 5 acres.
- j. Dust suppression and erosion control measures will be incorporated into all grading plans submitted to the City of Fernley for approval. The contractor will be responsible for methods used to meet the requirements of the City of Fernley.
- k. Retaining walls will be split faced block, modular stacked block, or others as approved by the ARC. Proposed retaining walls shall be included with proper grading plans and followed up with complete building permit packages which include structural calculations as required by code.
- l. Slopes steeper than 2:1 will be allowed within Victory MPA 1 with stabilization as recommended by a geotechnical engineer.
- m. Slope revegetation requirements will be coordinated with geotechnical engineer recommendations.
- n. All large cut/fill slopes or other large walls or terraced wall systems shall require cutoff/diversion swales at the top and sufficient width for maintenance access along the top and bottoms of walls and slopes.

3.2.3 PARKING LOTS AND PARKING LOT ENTRY DRIVES

- a. No more than ninety-five percent (95%) of the required automobile parking shall be in the rear service area of a project site. Truck and trailer parking shall be logically separated from auto parking.
- b. Parking lot design, configuration and sizes of parking stalls and aisles shall comply with Section 32.09.120 of the Fernley Municipal Code. Where a conflict exists between these standards and the Municipal Code the standards contained herein shall apply.
- c. Landscape islands shall not be required within truck court areas, or lots dedicated to parking of trucks/trailers.
- d. Total required parking spaces, parking dimensions, and access shall be designed per the Section 32.09.120 of the Fernley Municipal Code except for DC uses (aka Data Centers) which shall be afforded the opportunity to submit a parking study by qualified professionals to establish appropriate industry standards that demonstrate a lower parking ratio that should be justifiably and reasonably allowed. Parking ratios shall be determined by Table 32.09.120-2 of said section.
- e. Deviations to required parking standards may be permitted by the ARC and the City of Fernley if it can be demonstrated through a parking study/analysis (utilizing accepted professional

data) that a lower parking ratio is well supported and justified to adequately satisfy the parking demand.

- f. Driveways and entries will conform to the most current version of the City of Fernley Access Management Policy.

3.2.4 LIGHTING

- a. Parking lot layouts and configurations shall incorporate safety into design considerations including walkways and areas in path of travel.
- b. Parking lot, walkway and area lighting heights shall be reflective of the architecture of the project and be in scale with the setting.
- c. Overall lighting levels shall be compatible with surrounding ambient levels and color shall be uniform throughout a building project or cluster of buildings.
- d. Exterior lighting shall be used for purposes of illumination and safety except for signage that is compliant with an approved signage program.
- e. Night lighting of building exteriors shall be used only to highlight special recognizable features; accent repeated features; or use the play of light and shadow to articulate the facade. The purpose of illuminating the building shall be to add visual interest and supply building identification, directional signage and tenant signage that satisfies an approved signage program. Any direct projection of light (not ambient light) beyond the property line must be mitigated.
- f. Support structures for lighting shall be designed as part of the general theme of the building architecture.
- g. Mitigating excessive energy consumption shall be a factor in lighting type selection.
- h. Outdoor light sources shall incorporate cut-off shields to confine illumination to the site and mitigate the glare impacts upon adjacent properties.
- i. Exterior lights shall not blink, flash or change intensity. String lights, building or roofline tube lighting, reflective or luminescent wall surfaces are prohibited unless approved by the ARC and the City of Fernley.
- j. Mitigation directives shall provide that when possible sources of light shall be shielded or concealed and directed downward. Parking lot, walkway and area lighting shall be directed downward to mitigate light spilling off-site. The light source shall be kept as low to the ground as possible while ensuring safe and functional levels of illumination.
- k. Lighting within Victory MPA 1 shall comply with the regulations governing lighting contained within the Fernley Municipal Code Section 32.09.100. Where a conflict exists between the development standards recited herein and the City of Fernley Municipal Code, the standards recited herein shall apply.
- l. Lighting shall be placed along primary pedestrian pathways and crossings and any other pedestrian intensive areas.

- m. Lighting shall have a common design and color within the development. The use of non-standard fixtures along rights-of-way shall be prohibited.
- n. Bollards (if used) shall have a maximum height of 45 inches.
- o. Pedestrian lighting shall be spaced at intervals appropriate to facilitate the safety of the pedestrian.

3.2.5 SIGNS

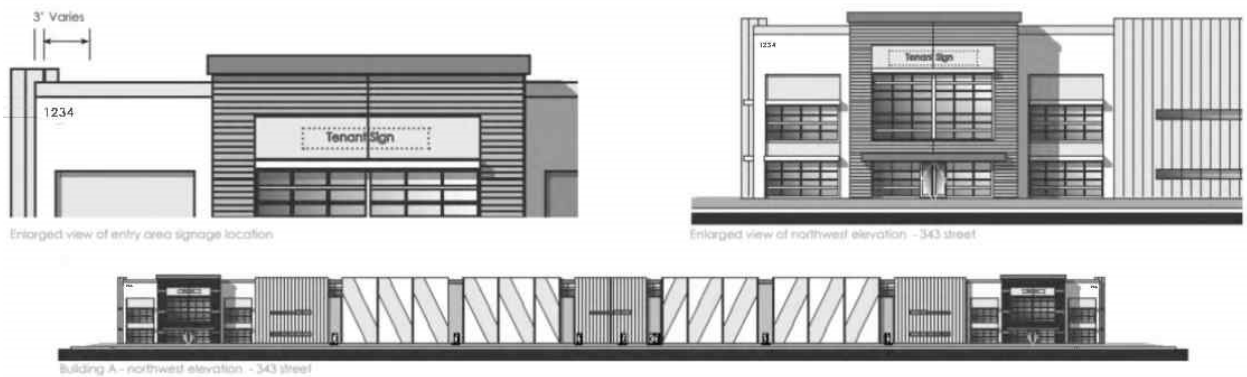
Signs and their integration into the project are a critical element in the design of Victory MPA 1. Careful use of forms, styles, materials, and colors will establish continuity throughout the project. The Victory Sign Program will conform to strict standards of first class industrial projects like Victory with consistent measures of aesthetics that are tasteful and professional and fabricated with high quality materials that deliver a look with broad appeal that conveys a timeless high quality image.

- a. Signs may be used for business and activity center identification (see examples below). Signs may be included on facades of buildings according to the sign development standards included in Chapter 32.10 of the Fernley Municipal Code and as provided in the Handbook or the Victory Sign Program as established by the Master Developer.

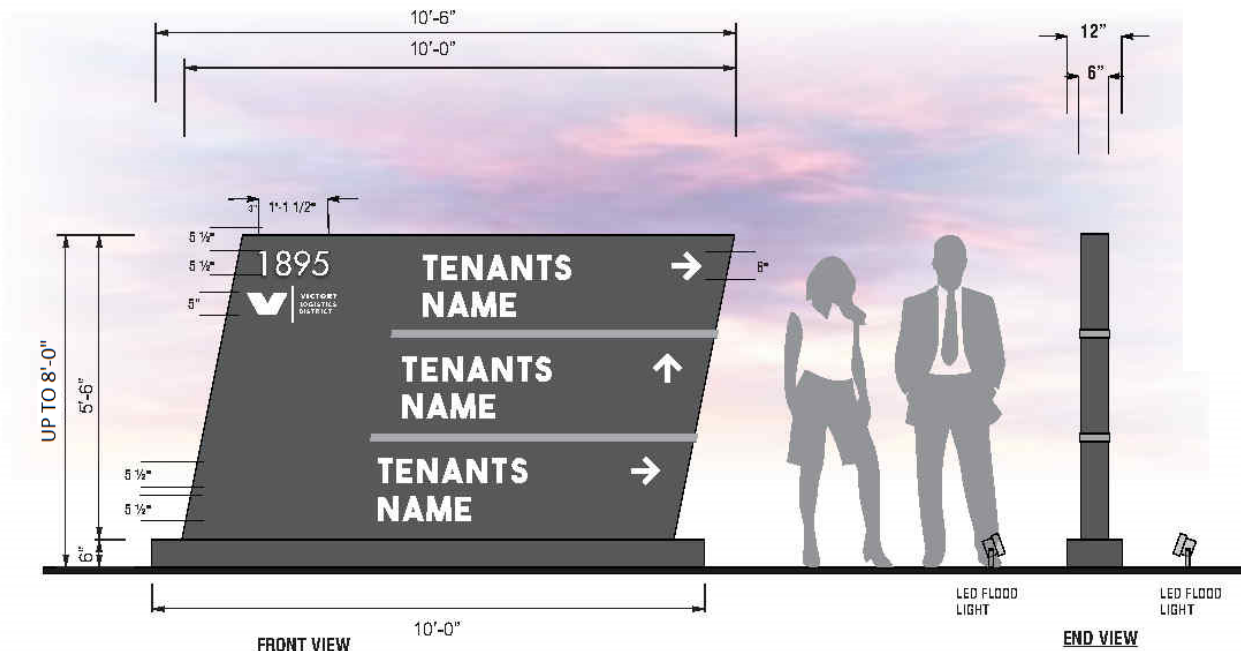


- b. Signs shall be included on facades or entry canopies of buildings and illuminated or backlit with indirect lighting. All tenant identification signs shall be consistently located and integrated into the architectural design of the building entry or office node. Storefront signs shall be proportional with the building architecture (see examples below).

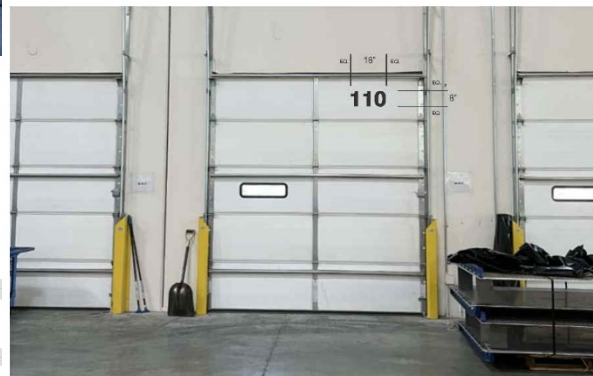
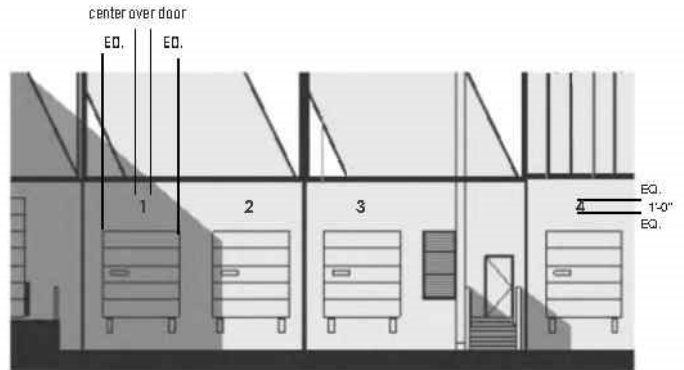




- c. Simple painted or raised letter signs are encouraged. A uniform scheme of colors, materials and style shall be utilized in each building or cluster of buildings. Flashing or animated signs are prohibited. Digital signs may be proposed and shall be in conformance with City of Fernley regulations.
- d. Freestanding information or tenant directory kiosks are allowed. Kiosks shall be designed to pedestrian scale with a maximum height of eight (8) feet and will be placed in proximity to pedestrian paths of travel. Kiosks shall be carefully integrated into the landscape and architectural design of the entries (see example on following page)



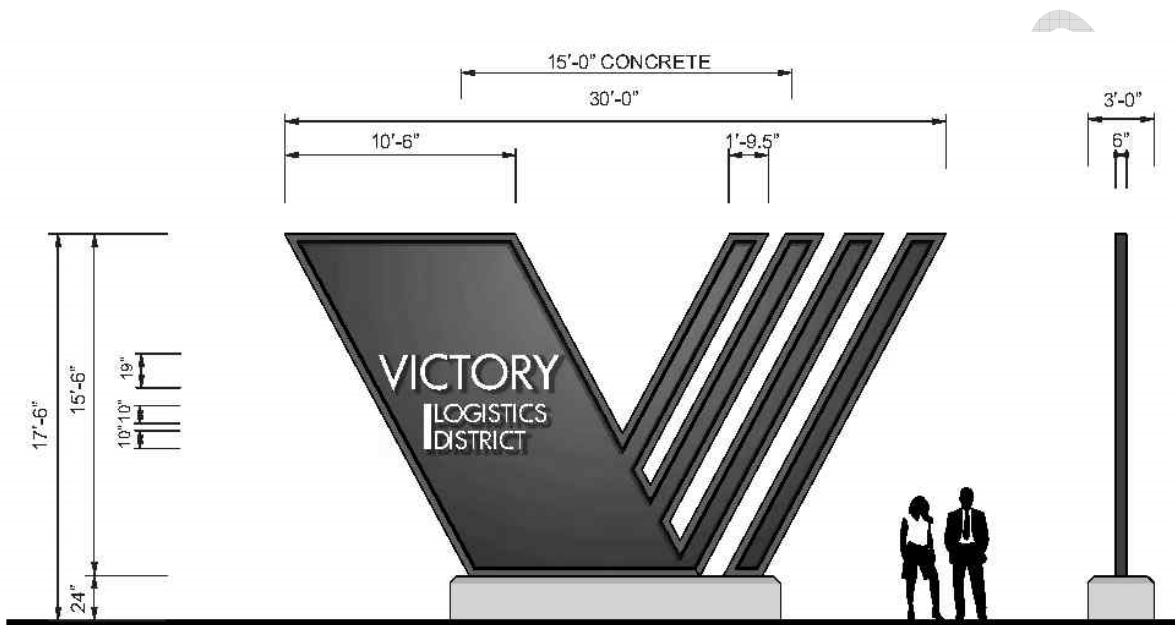
- signage.

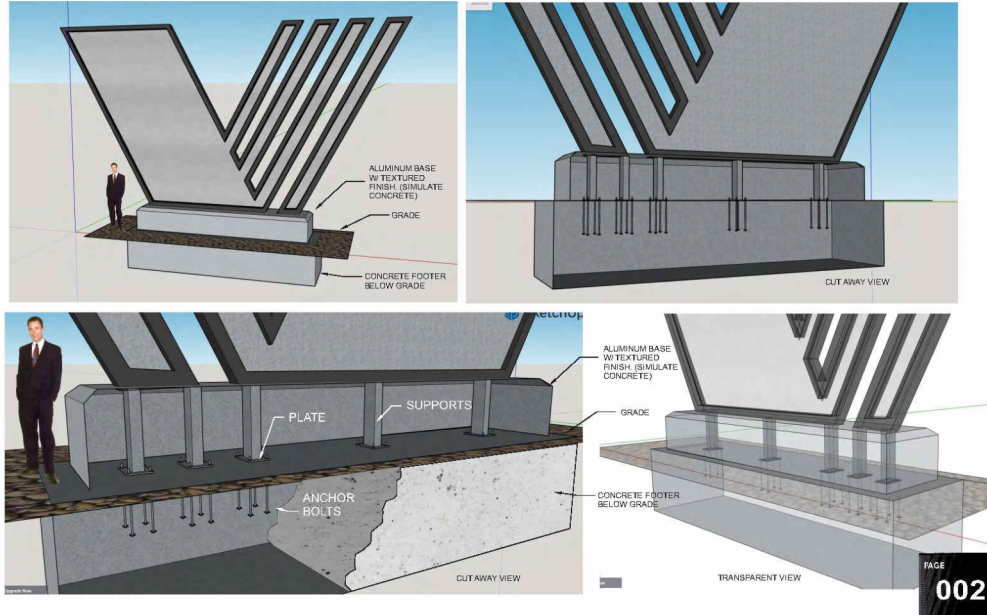


- Municipal Code, the street monument signs are depicted



- h. Project identification monuments for the overall Victory Logistics District may be located at prominent locations throughout the project. These “grand” monuments shall not exceed 17.5-feet in height and may be a maximum of 30-feet in width. The signs shall include a uniform theme in providing identification for the project as a whole, may include illumination, and shall be consistent with the concepts presented below and on the following pages:







- i. These standards may be modified by the Master Developer if unique qualities and standards are required to satisfy particular requirements, identity programs or security protocols for certain uses. In such instances, a master sign program for each building or cluster of buildings may be established for the number, types and location of signs which may best be determined by the unique needs of the property owners or tenants and be submitted to the ARC for review. Any such deviation or subset of design standards shall establish the style and type of sign for any such building or cluster of buildings in a manner that compliments well established and consistent protocols (such as colors, materials, placement and aesthetics) are consistent throughout the project. For new development and remodels of existing buildings that propose a significant deviations from the established Signage Program, shall be reviewed through the administrative review process outlined in this Handbook.

3.2.6 WALLS AND FENCES

- a. Walls and fences may be utilized to provide a buffer between incompatible uses. It is important, however, that walls are appropriately integrated into each project
- b. Design of all walls and fencing shall be consistent in terms of material, color and detail with the architecture of a given building or cluster of buildings with common access points or common areas. Exceptions to these provisions are afforded to DC use (or Data Center) which typically use certain types of fences or walls for their power substations and or perimeter security and screening walls. This includes but is not limited to Expanded Metal Fences that are a minimum of 8 feet tall and topped with another 1 foot extension arm holding three strands of barbed wire at 45% facing outward at a total height that may exceed 9 feet above surrounding ground elevation as appropriate, and often employ masonry block walls for perimeter or screening walls including any power substation, and may require a maximum of 14 feet in height above top of wall footing, while typical heights around power substations range from 8 to 14 feet above finish grade of the substation or surrounding grade as appropriate, and equipment yard screen walls are typically 20 ft in height or surrounding ground elevation as appropriate.
- c. Walls and fences within Victory MPA 1 shall comply with the following standards as well as the regulations contained within Section 32.09.050 of the Fernley Municipal Code. Where a conflict exists between these development standards and the City of Fernley Municipal Code, the standards contained herein shall apply.
- d. Screen walls shall be a minimum of three feet in height, but not more than six feet high except as provided in b above.
- e. Barbed wire, plain exposed concrete block, palisade, K-rated/crash-rated fencing and chain link are permissible per the standards included in Section 32.09.050 of the Fernley Municipal Code.
- f. Screen walls and/or landscaping shall be used to screen service, loading, trash and/or utility areas where they abut public rights-of-way, pedestrian plazas, or adjacent non-compatible uses.

- g. Trash and service areas shall be screened or landscaped.
- h. All privately maintained stormwater retention/detention basins shall be screened for safety and prevent pedestrian access with a 42" high pedestrian guard rail adjacent to pedestrian areas. All publicly owned and maintained basins shall be fully fenced with 6-foot tall chain link or decorative 6-foot tall fencing with locked gates for access.

3.2.7 SERVICE AND UTILITY AREAS

- a. All trash and garbage bins shall be stored in an enclosure, approved by the disposal service provider, and the ARC.
- b. Trash enclosures shall allow convenient access for each tenant.
- c. The trash enclosures shall be constructed of substantial building materials used in the design of the building(s). Gates shall be constructed of durable building materials that screens at a minimum 80% of the view into the trash enclosure.
- d. Trash enclosures must include provisions for concrete pads or appropriately designed asphalt sections in front of the enclosure.
- e. A loading area shall be provided for each freestanding restaurant site (applicable to C land use), or other accommodations shall be made.
- f. Truck maneuvering/circulation areas adjacent to non-industrial properties shall be designated to prohibit trucks from parking and idling in these locations, except in approved loading spaces or docks.
- g. Semi-truck maneuvering into and out of loading docks shall be accommodated on the development site, limiting maneuvering on adjacent public or private streets providing access to other development sites.
- h. Provide adequate drainage to prevent water or ice build-up at loading dock door(s).
- i. Provide adequate lighting. Lighting should provide convenience for loading and unloading and instances where light would otherwise spill over to adjacent parcels shall be appropriately mitigated.
- j. Separate vehicular and pedestrian traffic.
- k. Outdoor storage is not allowed per the CC&Rs, unless approved by the ARC and provided that an appropriate temporary use permit has been approved by the City.
- l. Required parking or loading areas shall not be used for permanent outdoor storage unless approved by the ARC.
- m. Service and storage areas shall be screened and gated. Trash enclosures shall be finished using materials that complement the development architecture (see previous examples). Gates shall be constructed of visually pleasing solid material such as metal, wood, or vinyl that visually screen the dumpster. Trash collection areas shall be approved by the disposal service provider, and the ARC.

- n. Transformers and other utility equipment that must be above ground shall be screened consistent with the standards of this handbook.
- o. Trash receptacles, compactors and bailers may be located within a building or in loading dock areas.

3.2.8 DRIVE-THRU FACILITIES

Drive-thru facilities are allowed in the Commercial land use designation within Victory MPA 1. Drive-thru facilities are intended to promote safe and efficient circulation, avoid site conflicts/functional problems, provide clearly identifiable circulation routes and provide for adequate vehicle stacking. Drive-thru facilities can include restaurants, drive-in banks and savings and loan institutions, and automated teller machines.

- a. Stacking lanes shall accommodate a minimum of 120 feet for food service uses (as measured from the pick-up window).
- b. Non-food service drive-thrus shall include a minimum of 80-feet of stacking distance, as measured from the service window.
- c. Drive-thru aisles shall be located as to not conflict with or obstruct circulation with other drive aisles or parking spaces.
- d. Drive-thru stacking distances may be varied with the approval of the ARC if it can be demonstrated that impacts to adjoining parking areas and/or drive aisles will not occur.

3.3 ARCHITECTURE STANDARDS AND GUIDELINES

3.3.1 BACKGROUND

The purpose of these architectural guidelines is to provide general design criteria and guidance for the development. The guidelines are not intended to restrict creativity or prohibit variety, but rather promote both visual compatibility and architectural quality. Architectural standards and guidelines are also provided to ensure buildings within Victory MPA 1 achieve high quality measures of contemporary aesthetic design and high-quality engineering that deliver top of market functional specifications.

3.3.2 ARCHITECTURAL THEME

Given the size of Victory MPA 1 and the breadth of tenants and uses, there is no set architectural theme mandated by this Handbook. Instead, Victory MPA 1 offers a unique opportunity to incorporate a variety of architectural styles and designs that will be tied together through the implementation of the standards included in this Handbook. The goal is to create a consistently high quality industrial center whose character and identity will withstand the test of time.

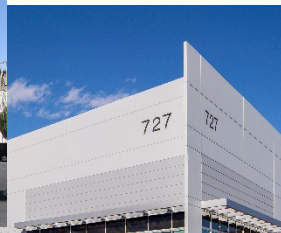
3.3.3 BUILDING MASS AND FORM

- a. Facades shall be visually interesting by incorporating wall plane projections or recesses on all four sides of the building. It is recognized that the nature of some envisioned uses (i.e. warehousing and distribution) require long expanses of flat wall planes to accommodate dock doors, etc. However, methods shall be implemented to articulate these planes, including

bump-outs, variation in rooflines, etc. There shall be no long flat expanses of walls that exceed 500 feet without incorporating at least two of the following: color change, texture change, material change, or plane projections or recesses. See examples below.



- b. Facades shall be articulated to reduce the uniform, impersonal appearances of large office/industrial buildings and provide visual interest. See examples below.





c. The office nodes of buildings shall incorporate architectural features such as glazing, canopies, material changes, or other elements and/or patterns at project entries that provide pedestrian-scale visual interest. See example to left.

d. Building facades shall use color change, texture change, material change or relief changes to create a higher measure of interest to what would otherwise represent large expanses of blank walls and box-like structures. See example to right



e. Clusters of buildings within a single user's facilities shall be designed to be compatible with each other using similar building materials, texture, color, or design.

3.3.4 BUILDING ENTRYWAYS

a. Entryway design elements and variations shall give orientation and aesthetically pleasing character to the building. The entrance shall be clearly distinguished by the architectural design of the building.

b. Each principal building should have clearly, highly visible entrances featuring architectural elements that distinguish themselves from the balance of the building. Typical elements are listed below. However, alternative elements may be utilized during the design review process if a better design solution is found that will satisfy the design intent:

- canopies
- overhangs

- recesses/projections
- corniced parapet wall over the entry element
- peaked roof forms
- arches

3.3.5 ROOF FORM

All rooftop equipment on buildings less than 30 feet tall shall be screened from public view at street level in a manner matching the architectural style and materials of the building. Screening shall be designed as part of the architecture of the building.

3.3.6 MATERIALS AND COLORS

- Buildings within a development shall be aesthetically pleasing and compatible with materials and colors used in adjoining buildings.
- A variety of building materials, accents, or colors shall be used on all four exterior sides of all buildings. The variety of material selected shall establish a balance of textures, wall plane changes, and color to eliminate excessively long spanses of flat colorless wall.
- Predominant exterior building materials shall be of high quality. These include a minimum of three (3), but are not limited to:
 - concrete tilt-up
 - projection/recess forming elements in concrete
 - brick or brick veneer
 - iron
 - steel/metal
 - other native stone
 - painted, tinted, textured, concrete masonry units
 - tinted, textured stucco or dryvit
 - window walls / reflective glass
 - glass or glazing
 - concrete or form board concrete
 - other materials acceptable to the ARC.
- Facades shall utilize low reflecting, subtle, neutral or earth tone colors. The use of high intensity colors, metallic colors, black or fluorescent colors shall only be used as accents.
- Building trim and accent areas may feature brighter colors, including primary color. Neon tubing shall only be permitted with the approval of the ARC as an accent or building trim feature.
- Exposed trusses, beams, and other structural elements that directly relate to the design of the building are encouraged.

CHAPTER 4 INFRASTRUCTURE AND PHASING

4.1 UTILITIES/INFRASTRUCTURE

This chapter addresses the infrastructure improvements that will be required to support the ultimate development of Victory MPA1; specifically, open space/trails, sanitary sewer, water, drainage/flood control, traffic, rail, electricity/natural gas, police protection, and fire protection, as generally described in Sections 4.1.1 through 4.1.9 below. These infrastructure improvements will be governed by the following binding principles: Sufficiency, Concurrency, Equitable Funding, and Certainty.

- **Sufficiency** – The infrastructure of Victory MPA1 must be sufficient to adequately serve the land uses described in Chapter 2 of this Handbook. In order to establish those requirements, a comprehensive set of infrastructure analyses have been completed for Victory MPA1. The analyses include preliminary drainage, water, sewer, and traffic studies for the project. Each of these studies is included as an appendix to this Handbook, and the recommended infrastructure improvements in these studies establish the benchmark by which sufficiency of service will be measured as development progresses in Victory MPA1.

As design of the overall infrastructure system is advanced, additional alternatives for phasing buildout and efficient use of infrastructure will be considered. The Master Developer is committed to providing adequate utility buildout for all prospective tenants and will work with the City of Fernley to deliver infrastructure capable of expanding with tenant growth. This will require using engineered designs that deliver value and function while mitigating against excessive operating and maintenance costs. All final infrastructure will be designed with the flexibility to accommodate the expansion of capacities for the forecast tenant base.

- **Concurrency** – Infrastructure improvements in Victory MPA1 should be available concurrently with the physical development of the uses generating demand for such infrastructure improvements. Section 4.2 of this Chapter 4 provides additional detail on the phasing of infrastructure improvements, and sets forth clear, but flexible parameters for ensuring that infrastructure is available when needed, but not “over built” in such a manner as to impose unnecessary operating and maintenance costs on Master Developer or the City.
- **Equitable Funding** – Equity requires that infrastructure improvements necessitated by new development be funded by that new development. Similarly, fairness dictates that infrastructure improvements that benefit current or future development located outside Victory MPA1 be funded by that development to the extent of such benefit. Finally, operating and maintenance expense for infrastructure within Victory MPA1 should be apportioned between the City and private parties in the same manner as such expenses are addressed elsewhere in the City. The tables included in Section 4.2 of this Chapter 4 illustrate these concepts of equitable funding, which will guide the apportionment of

expense for capital improvements and operating/maintenance for infrastructure within the Project.

For clarification, nothing in this Handbook shall be deemed to obligate the City to advance public funds on any particular timetable nor participate in any form of public financing for construction of any improvement or infrastructure contemplated herein. The City and Master Developer will engage in good faith discussions from time-to-time regarding various options to provide mechanisms that will insure the timely and economically efficient provision of the infrastructure improvements described in this Handbook (including, without limitation, possible impact fee programs adopted by the City under Code §32.13.010, one or more reimbursement agreements entered into by the City under Code §32.13.020 or Code §32.09.170(e)(2)), the formation of one or more Special Improvement Districts pursuant to Consolidated Local Improvement Law, as amended (NRS Chapter 271), and the formation of one or more Tax Increment Areas pursuant to NRS Chapter 278C). However, any obligation of the City to contribute funds of a particular amount or at a particular time shall be subject to future agreement and action by the City, applying the principles set forth in this Section 4.1.

- **Certainty** – As noted in Chapter 1 above, the size and scale of Victory MPA1 will require a significant capital investment by Master Developer, return on which will take years to realize. In order to encourage and protect Master Developer's investment, it is understood that the open space/trails, sanitary sewer, water, drainage/flood control, traffic, rail, electricity/natural gas, police protection, and fire protection infrastructure improvements and/or services described in and developed pursuant to this Handbook are the sole types of public infrastructure and municipal services required of development within Victory MPA1. While the phasing and scope of the aforementioned infrastructure improvements and/or services will vary to ensure efficient development consistent with the principles in this Section 4.1, no other types of infrastructure or municipal service (e.g. recreational amenities, library services, schools, public safety buildings, etc.) may be required of development within Victory MPA1.
- **Phasing** – Due to the size and scale of the Victory MPA1 project, the project has been divided into smaller phased portions of likely buildout areas. This phasing is not ordered, but grouped in development areas that are able to meet tenant demand as it progresses. These areas are the East, North Central, South, South Central, and West and discussed in section 4.2 of this handbook.

4.1.1 OPEN SPACE AND TRAILS/PATHS

Open space areas including but not limited to detention/retention facilities, drainage channels, trails and paths, and landscaping will all be undertaken with timely phasing that concurrently delivers such infrastructure as may be required to satisfy the needs of development projects as they are completed. Trails will be constructed with adjacent roadways and trail connectivity will be supported with all finalized roadways per the sections provided in Section 2. All trails will be ADA compliant. Figure 4-1 shows the layout of the multi-use path throughout Victory MPA 1.

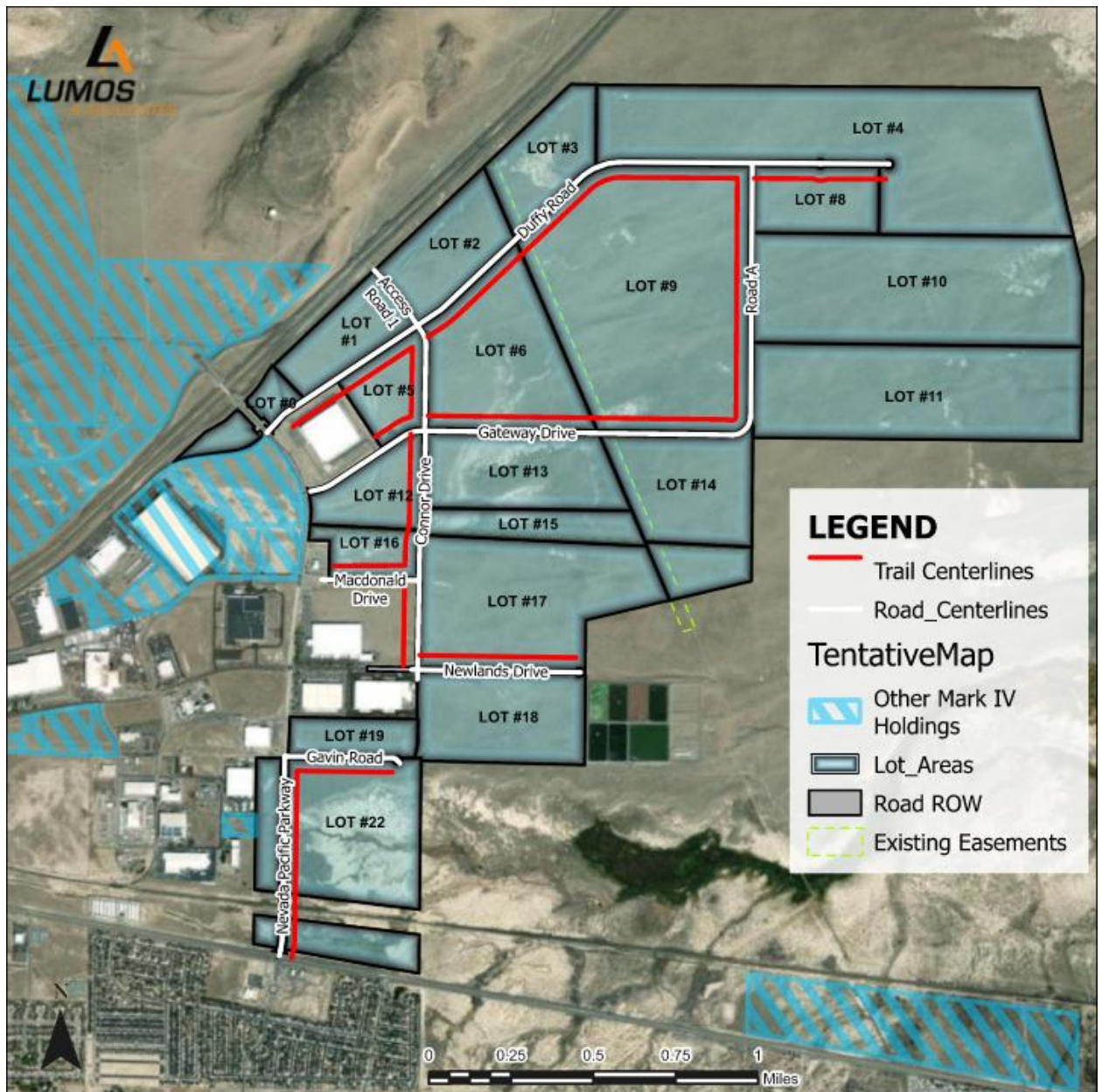


Figure 4-1 – Victory MPA 1 Roadway and Trail System

4.1.2 SANITARY SEWER

The preliminary sewer report prepared by Lumos & Associates is included in the attached appendices (the “Sewer Report”) and identifies conceptual sewer system recommendations and costs for the Victory MPA1.

The backbone sewer system planned for Victory MPA1 will consist of approximately 3.3 miles of gravity sewer pipeline ranging from 8-inch to 18-inch diameter. Buildout peak flows for the gravity system are estimated at 3.9 mgd. Preliminary options for the lift stations include square or rectangular wet wells. Final wet well dimensions and shape will be determined during design. A

duplex pump system (1 duty + 1 standby) to triplex pump system (2 duty + 1 standby) is proposed with the various lift stations, with preliminary motor sizes ranging from 5 to 30 horsepower (hp) each. Submersible pumps are recommended for all lift stations, however, all design will be coordinated with the City of Fernley for final input on facilities. Odor control will be considered in the design of all lift stations as well.

Construction Considerations:

Considerations for design and construction of the onsite and off-site sewer system are summarized below:

- **Phasing:** Sewer infrastructure recommended in the Sewer Report will be phased to match the growth of the development as provided in Section 4.2 below, with the lift stations planned for construction with the initial phase.
- **Easements:** Utility easements will be provided for any portions of the force main alignment to allow access through the public property. Force mains installed parallel to rail spurs shall be located in separate 10' wide easements which are accessible for maintenance without encroaching into the rail spur easement/ROW.
- **Utility Conflicts:** A thorough investigation of existing utilities along the force main alignment will need to be conducted during design including review of record drawings, coordination with utility companies, and potentially potholing.
- **Special Construction:** Encasements under any future rail alignment will be compliant with UPRR standards.
- **Connection at East Fernley Wastewater Treatment Plant ("EWWTP"):** Available capacity and discharge location at the EWWTP will need to be coordinated with the City of Fernley per the sewer report
- **Traffic Control:** Traffic control measures will be developed and implemented in accordance with the requirements of the City of Fernley, and the Manual on Uniform Traffic Control Devices.
- **Nevada Department of Transportation ("NDOT"):** Right-of-way occupancy permits will be acquired in any NDOT right of way areas.

Wastewater generated from Victory MPA1 will be collected by a gravity sewer network and conveyed to several on-site lift stations. From the on-site lift stations, wastewater will be conveyed to EWWTP, just east of the southern portion of the project via various force mains during different phases of the project. The final layout and sizing of sewer infrastructure will be determined during final design. Figure 4-2 shows the anticipated sewer phasing as it relates to the five phases of the project. Depending on the location of tenant demand, this phasing will be modified to install the necessary improvements to serve any tenant buildout and accommodate

future demand. Table 4-1 shows the anticipated pipe sizes and lengths to be installed for the backbone infrastructure.

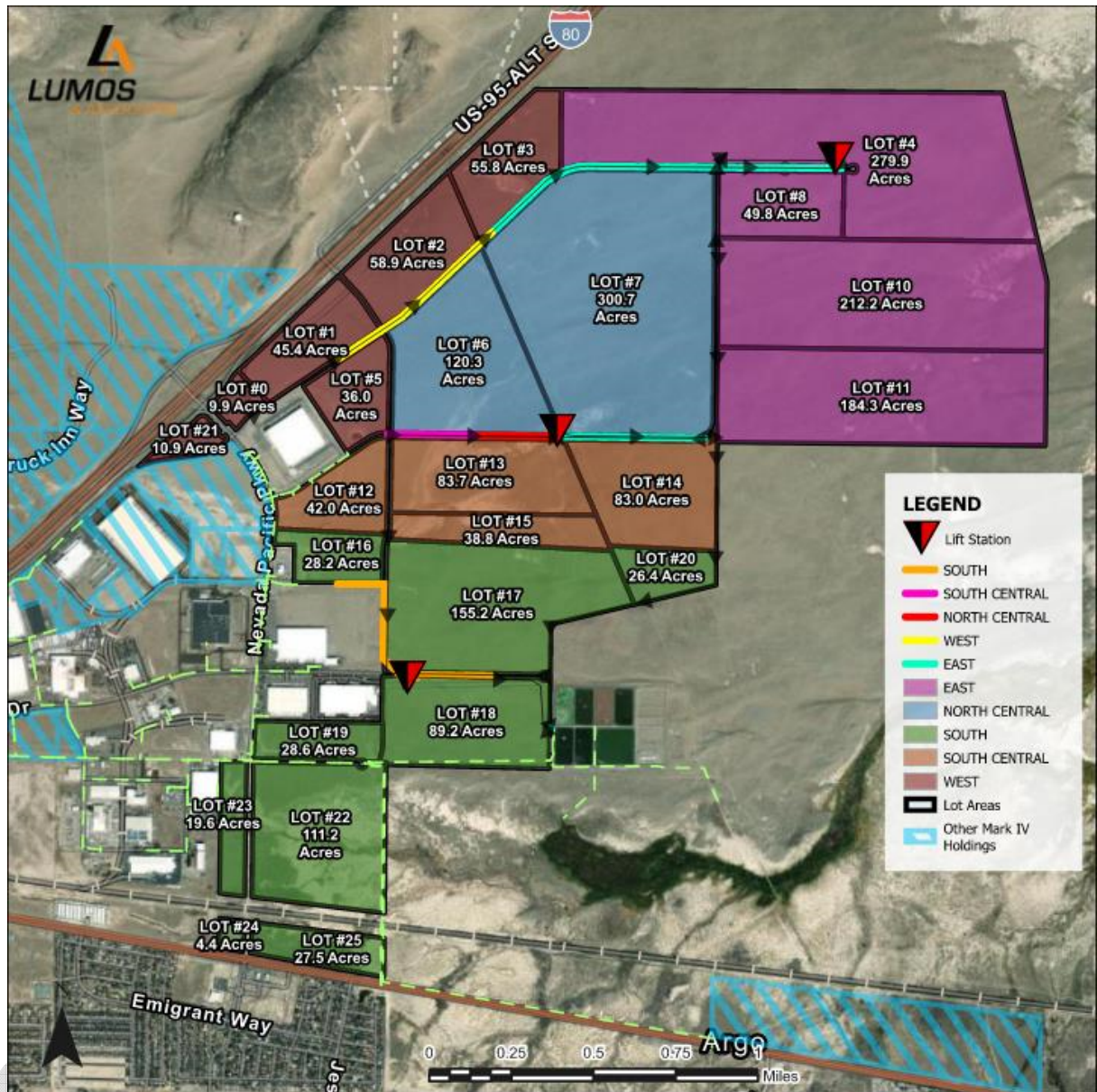


Figure 4-2 – Sewer Phasing

Table 4-1 – Pipeline lengths for backbone Gravity Sewer and Force Main Network

Pipe size (inches)	Pipe length (LF)
Gravity Sewer	
8	8930
10	7970
12	1310
15	50
18	10
Force Mains	
4	5,870
6	31,560
8	12,980

Any lift station that pumps directly into the treatment plant will be required to have pretreatment equipment installed at the WWTP headworks. This equipment will be a chain and rake facility at a minimum.

Supervisory Control and Data Acquisition software will need to be installed and incorporated into the City's existing SCADA software. All costs shall be borne by the developer.

4.1.3 WATER

A detailed water report, prepared by Lumos & Associates is included in the appendices of this Handbook (the "Water Report"). A summary is provided herein.

Considerations for design and construction of the off-site water facilities are summarized below:

- **Phasing:** Water infrastructure recommended in the Water Report will be planned to provide adequate looping for the proposed system.
- **Utility Conflicts:** A thorough investigation of existing utilities along the water main alignments will be conducted during design including review of record drawings, coordination with utility companies, and potentially potholing.
- **Special Construction:** Special construction (e.g. concrete encasement) may be required if minimum utility separations cannot be met within existing utility corridors. Encasements under any future rail alignment will be compliant with UPRR standards.

- **Connection to Existing Systems:** Connection to the existing City of Fernley water mains will need to be coordinated and planned to minimize water service interruptions.
- **Traffic Control:** Traffic control measures will need to be developed and implemented in accordance with the requirements of Fernley, NDOT, and the Manual on Uniform Traffic Control Devices.
- **Nevada Department of Transportation (“NDOT”):** Right-of-way occupancy permits will be acquired in any NDOT right of way areas.
- **Flushing of Mains:** In the event that periodic flushing of water mains during construction produces large amounts of wasted water, the developer will pay for the water use.

The preliminary on-site water system includes a backbone distribution system with a minimum 2 pressure zones, pipe diameters ranging from 8 to 30-inch diameter, one existing and three new phased water storage tanks. Hydraulic modeling results and calculations show that the Master Developer’s conceptual water distribution system will be in compliance with all state and local regulations to meet required Average Daily Demand (“ADD”), Maximum Daily Demand (“MDD”), PHD, and fire flow scenarios. Exact phasing, sizing, and location of on-site infrastructure will be determined by development needs at the time of final design consistent with Section 4.2 below. All permanent infrastructure will be designed for full future buildout of anticipated tenants.

Master Developer controls sufficient water rights to support the development of Victory MPA1 and will allocate those resources incrementally as users are committed. Master Developer’s baseline water allocation to users will be up to one-half acre-foot of water for every acre of development. The water rights ultimately committed to any given deal will be based upon the desirability, financial strength, and use dynamics within Victory MPA1.

Supervisory Control and Data Acquisition software will need to be installed and incorporated into the City’s existing SCADA software. All costs shall be borne by the developer.

Figure 4-3 shows the anticipated water phasing as it relates to the five phases of the project. Depending on the location of tenant demand, this phasing will be modified to install the necessary improvements to serve any tenant buildout and accommodate future demand. Table 4-2 shows the anticipated pipe sizes and lengths to be installed.

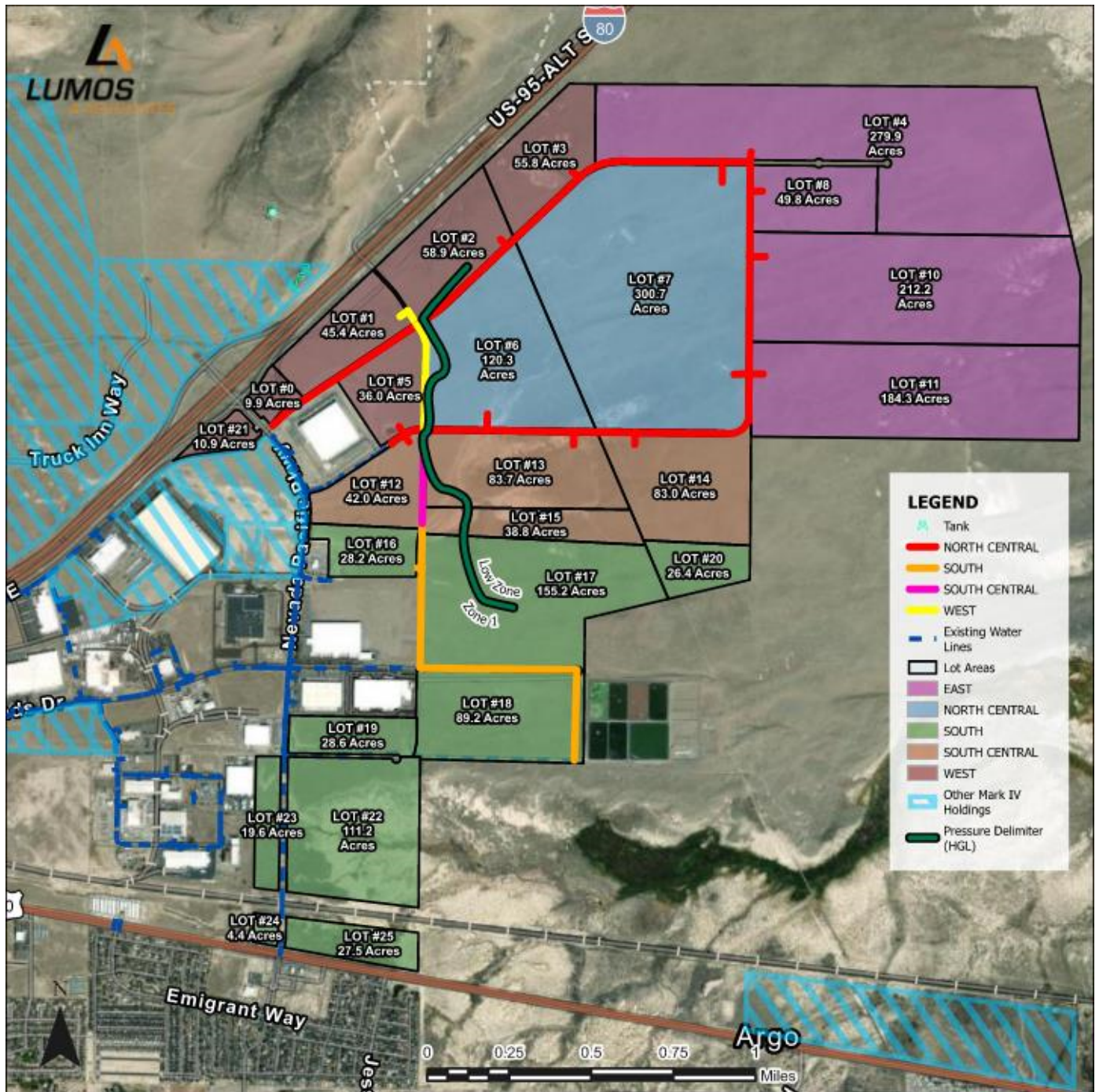


Figure 4-3 – Water Phasing

Table 4-2 – Pipeline lengths for backbone Distribution System

Pipe size (inches)	Pipe length (LF)
10	11,440
12	8,800
14	880
16	4,290
18	240
20	450
24	8,750
30	400
Total	35,250

4.1.1 DRAINAGE/FLOOD CONTROL

A preliminary drainage report, complete with stormwater analysis, prepared by Lumos & Associates is included in the attached appendices (the “Drainage Report”).

The majority of Victory MPA1 is located within the FEMA designated Un-Shaded X Flood Hazard Zone. The southernmost 170 acres of Victory MPA1 are bisected by a stretch of land which had been designated as Zone A Flood Hazard Zone which denotes an unqualified flood zone area. The Master Developer has secured FEMA approval for the conditional letter of map revision (CLOMR) submitted to FEMA as Case #21-09-1471R. Any development of this area will be required to incorporate the mitigation measures prescribed by that approved CLOMR, and after any such compliant development, a LOMR (Letter of Map Revision) will be submitted to FEMA to secure the removal of that flood zone designation and the related removal of this area from FEMA Flood Zone maps.

Victory MPA1 has been designed with local and major storm drain infrastructure. The local infrastructure is designed to capture runoff in the streets and portions of the lots to prevent localized road flooding. The major infrastructure is designed to mitigate regional flooding and convey offsite flows. Proposed drainage has been directed to one of four regional detention/retention facilities. Each facility has been designed to detain or retain the increase in runoff for the 25-Year 24-Hour storm event. Basin G, has been designed to retain the entire 100-Year 24-Hour storm event. All development will have the option of detaining/retaining all developed flows onsite or contributing to the regional facilities. Parcels within Victory MPA1 will generally have to detain at least 50% of their developed flows on site, with the rest planned for direction to regional infrastructure.

Two existing retention basins exist within the Victory MPA 1 limits. These basins were installed as interim conditions in anticipation of future buildout within the site. As parcels are created and development occurs in the vicinity of these interim basins, final infrastructure that incorporates and propagates the flows associated with the interim storage areas will be installed. Final regional level detention solutions incorporate the capacity and flows associated with these interim retention basins.

Figure 4-4 shows the anticipated water phasing as it relates to the five phases of the project. Depending on the location of tenant demand, this phasing will be modified to install the necessary improvements to serve any tenant buildout and accommodate future demand. Table 4-3 shows the anticipated pipe and channel sizes and lengths to be installed.

Table 4-3 – Pipeline and channel lengths for Storm Water System

Pipe size (inches)	Pipe length (LF)
12-inch PVC	3,696
15-inch PVC	4,790
18-inch PVC	5,524
24-inch RCP	4,966
30-inch RCP	5,215
36-inch RCP	4,319
48-inch RCP	8,942
60-inch RCP	5,678
36-inch HDPE	5,667
Total	48,797

Channel name	Channel length
Channel 1	4,470
Channel 2	4,550
Channel 3	3,350
Total	12,370

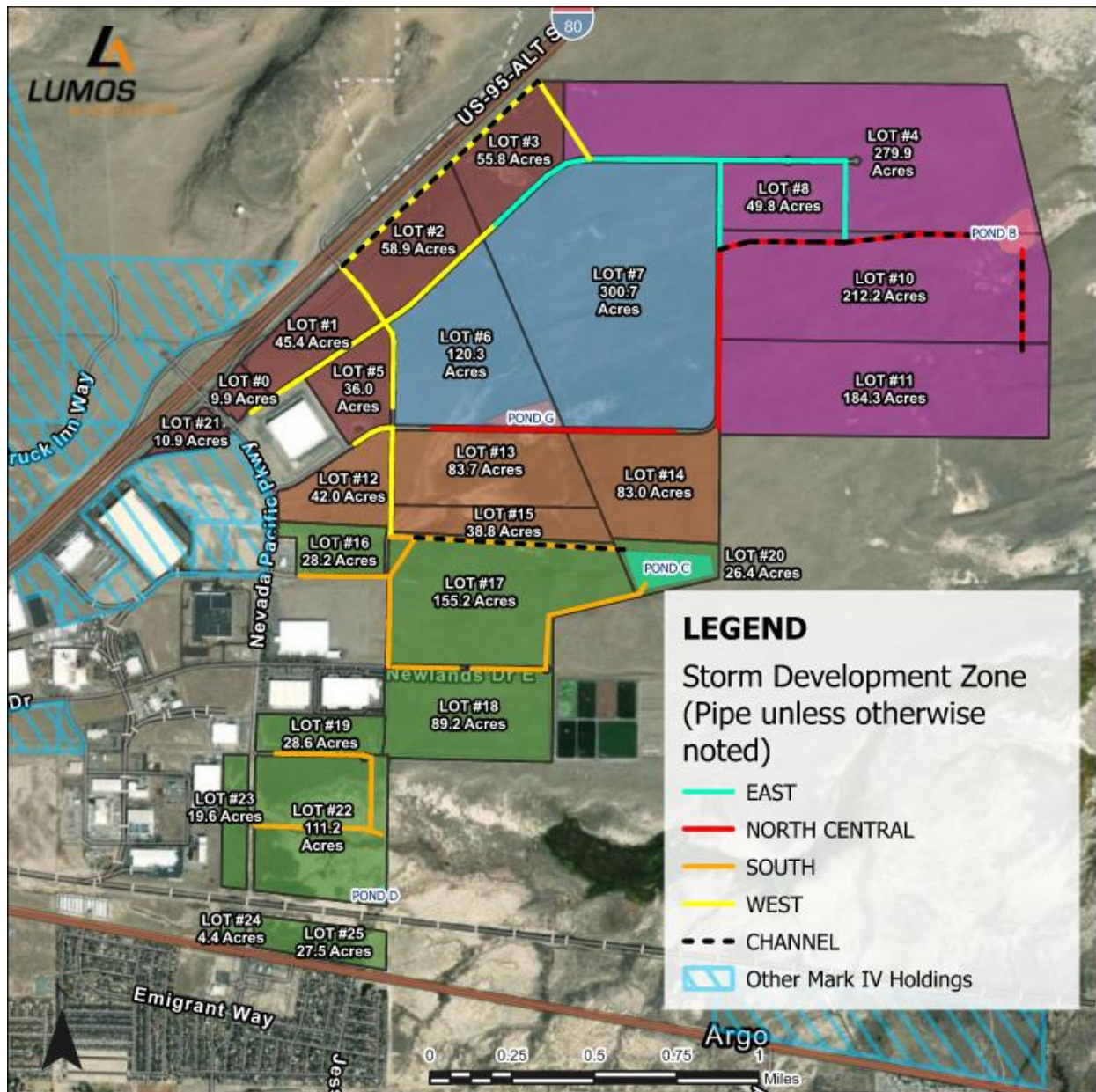


Figure 4-4 - Storm Phasing

4.1.2 TRAFFIC

Victory MPA1 is proposing three right-of-way (ROW) sections; a 37-foot ROW, a 62-foot ROW, and an 84-foot ROW. Each ROW section will have sufficient travel lanes for the anticipated traffic, including a middle turning lane to provide turning movements into tenant facilities. Direct access to Interstate 80 is provided via Nevada Pacific Parkway. As tenants build out the site, phasing of roadways will occur to allow for site accessibility and fire access consistent with Section 4.2 below.

Headway Transportation has completed a traffic impact report that analyzes the cumulative impacts that Victory MPA1 will have on the local and regional roadway network. This report is included in the appendices to this Handbook (the “Traffic Report”). At full buildout, Victory MPA1 is anticipated to generate 46,347 average daily trips (ADT) with 3,654 am peak and 4,152 pm peak hour trips. While trip generation is significant, the Traffic Report identifies the staged improvements and the related phasing that must occur to maintain acceptable levels of service (LOS) on area roadways.

The Traffic Report summarizes the anticipated transportation improvements in a table format along with the traffic thresholds that will trigger the various upgrades and informs the concurrency standards for roadway improvements set forth in Section 4.2 below. Future improvements including signalization at full build out are shown in Figure 4-5 below.

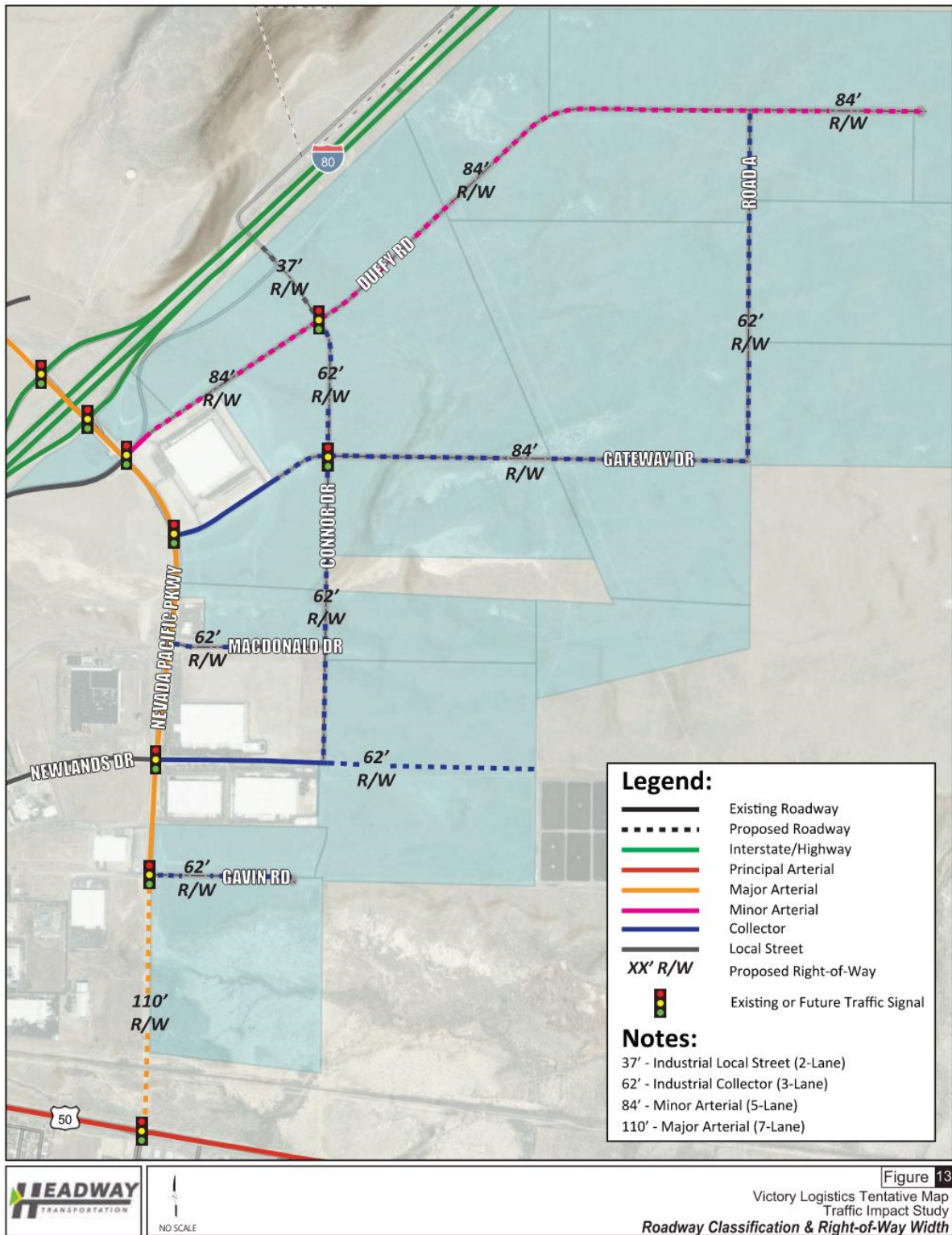


Figure 4-5 – Roadway Infrastructure Improvements

4.1.3 RAIL

The Master Developer is proposing an industrial lead track within the park that will connect to the UPRR main line. This rail infrastructure, as shown in Figure 4-6 below, will switch off the existing UPRR mainline on the south end of the project within the UPRR Right-of-Way. It will then continue northeast and parallel the UPRR track until it turns north along the eastern border with the Bureau of Reclamation (BOR) land. This rail will continue north between the City's existing sewer lift station and the current location of Well 9. Pursuant to Master Developer's proposal to the City, Well 9 is anticipated to be relocated to a location 300 feet to the northeast from its existing site. Master Developer has already completed the required test well in its efforts to process approvals for the relocation. The industrial lead track will then follow along the east side of the planned course of Connor Drive until it turns and follows along the north side of the 75 ft wide Cyrq Energy transmission power easement to a planned switching and transload facility. Future phases of the industrial lead track are contemplated to track close to the eastern border and ultimately along the northern border of Victory MPA1 next to BOR lands as depicted in the exhibit of the rail infrastructure. Rail infrastructure compliant with UPRR standards will be delivered throughout Victory MPA1. This Handbook includes design standards for the industrial lead, depths of utilities, and required cover and encasement specifications for any rail crossings.

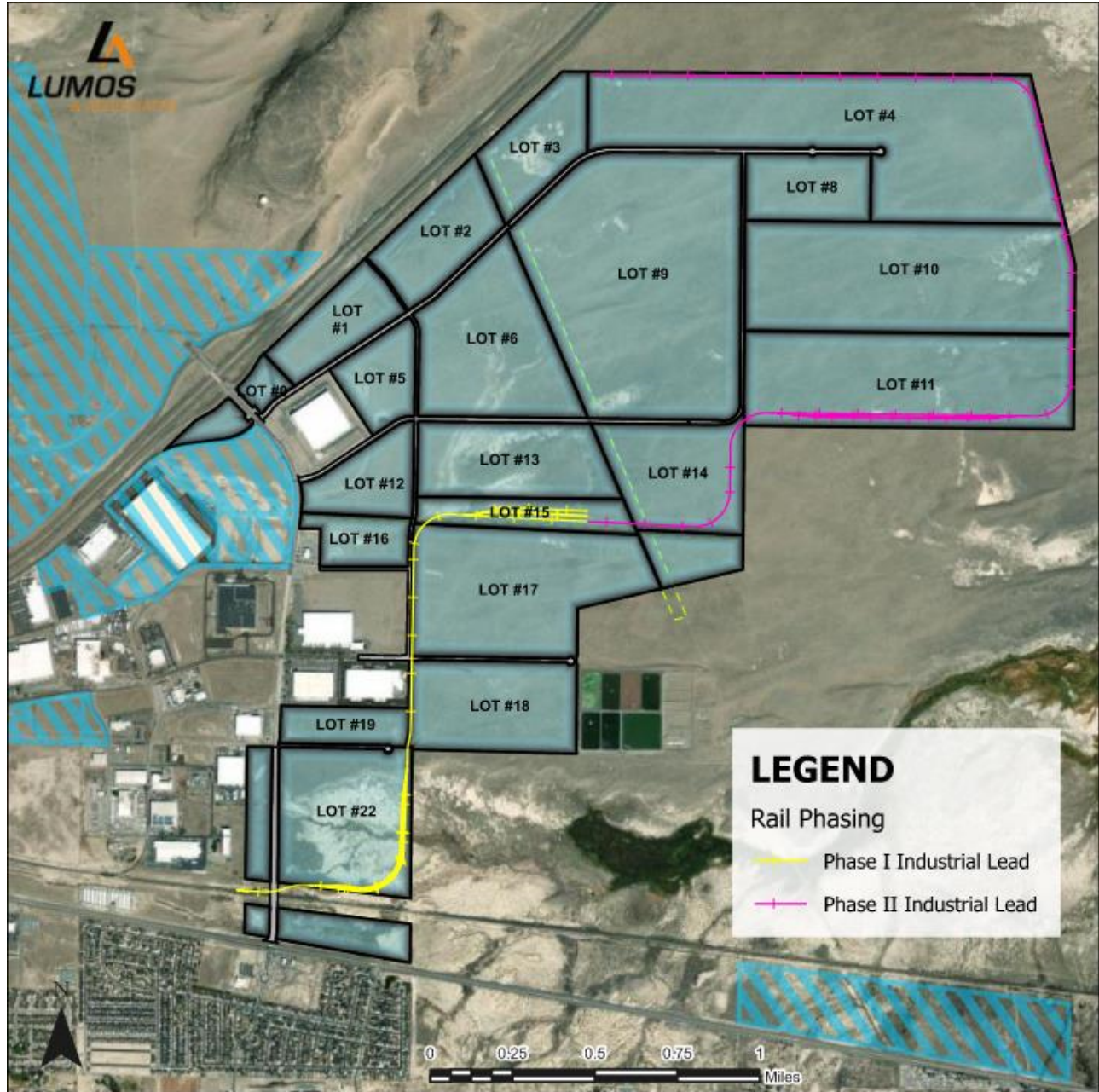


Figure 4-6 – Industrial Lead Infrastructure

Based on current utility and rail layouts for Victory MPA 1, there will be utility crossings that occur within the industrial lead corridor. These include both existing utilities and future utilities. Figure 4-7 below outlines the anticipated crossing locations with utilities. All crossings will follow UPRR standards, with minimum depth and encasement requirements as shown in Section 2.2.3 of this handbook.

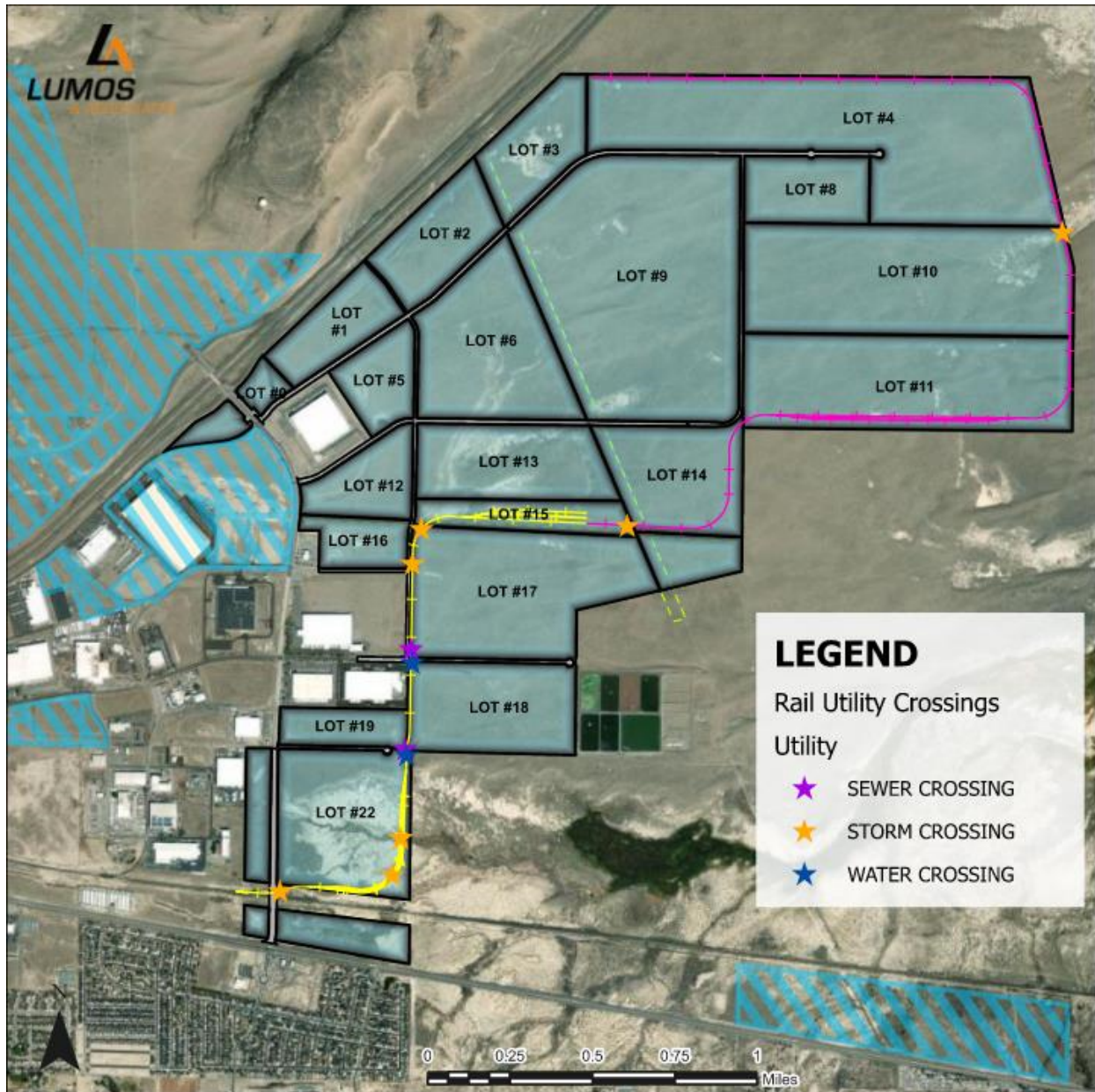


Figure 4-7 – Industrial Lead Anticipated Utility Crossings

4.1.4 ELECTRICITY/NATURAL GAS

Electricity and natural gas in Victory MPA1 will be provided by private parties authorized to deliver utility service by the State of Nevada Public Utilities Commission (e.g. NV Energy, Southwest Gas,

etc.). Each user within Victory MPA1 will coordinate directly with the relevant private purveyor to ensure adequate delivery of electricity and natural gas as necessary to support such user's development.

4.1.5 POLICE PROTECTION

Police protection services for Victory MPA1 will be provided by the Lyon County Sheriff's Office ("LCSO"). Development within Victory MPA1 will coordinate directly with LCSO to ensure adequate provision of police protection services.

4.1.6 FIRE PROTECTION

Fire protection services for Victory MPA1 will be provided by the North Lyon County Fire Protection District ("NLCFPD"). Development within Victory MPA1 will coordinate directly with NLCFPD to ensure adequate provision of fire protection services.

4.2 OVERALL PHASING

The size and wide spectrum of uses that drive capacity specifications make it difficult to predict the future phasing of Victory MPA1. The Phasing Map set forth below in Figure 4-8 provides a road map of current thinking as to the areas of concurrent buildout of Victory MPA1, and the maps set forth in Section 4.1 above offer a useful correlation of anticipated phasing of development relative to various land areas within these phases of the project. Nevertheless, ultimate timing of development will be dictated by market demand, and related phasing of infrastructure improvements will be guided by the Concurrency principle described in Section 4.1 above, and the information and tables in this Section 4.2.

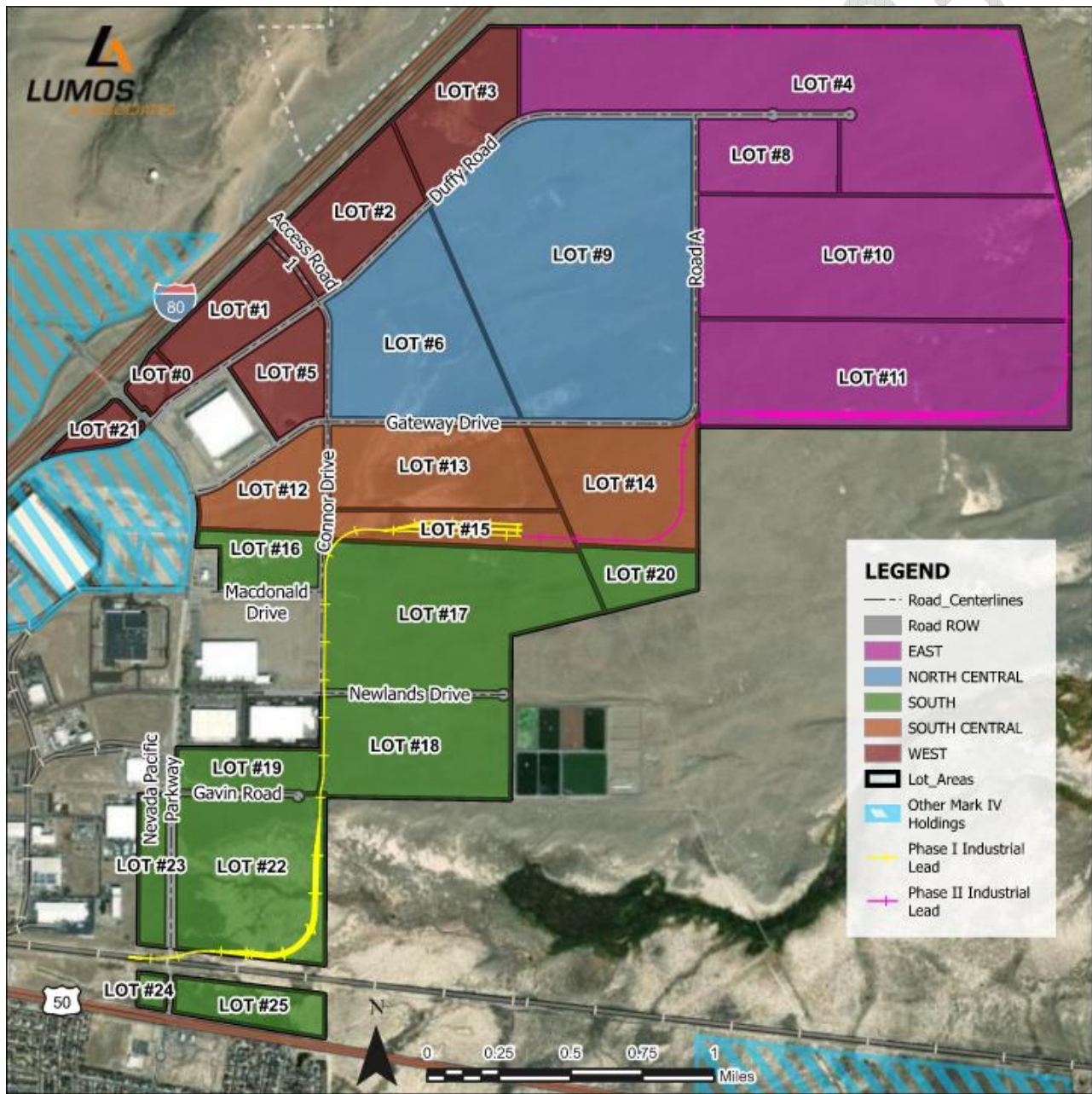


Figure 4-8 – Victory MPA 1 Phasing Plan

4.2.1 CONCURRENCY OF INFRASTRUCTURE AND FACILITIES

The Concurrency principle identified in Section 4.1 above dictates that infrastructure be completed in time to maintain adequate levels of service to existing development while simultaneously providing adequate levels of service to new development as such new development comes online. The following tables provide a visual depiction of the concurrency standards/requirements mandated by this Handbook. The first table sets forth anticipated responsibilities for the construction and ownership of improvements, as well as allocation of the obligation to pay for the initial construction and subsequent operation and maintenance (O&M) of such infrastructure. The second table sets forth options for demonstrating concurrency, upon request for a certificate of occupancy, with respect to different types of infrastructure, recognizing that in some cases concurrency may be established by actual provision of infrastructure while in other instances concurrency may be shown by payment of a “fair share” toward future or prior construction of the relevant infrastructure.

In referencing “All Benefitted Private Parties” in the Capital Funding Source column in the first table below, this Handbook merely recognizes that certain infrastructure constructed in Victory MPA1 will be of benefit to more than one party, and in some cases will be of benefit to parties who own property not included in Victory MPA1 or subject to this Handbook. To the extent allowed under applicable law, Master Developer and the City will coordinate the funding plans used to finance infrastructure so as to collect from benefitted parties their “fair share” of the cost of provided infrastructure. Oversizing of infrastructure outside of what is required for the development will be coordinated with other private parties or the City including funding mechanisms to support such oversizing.

Infrastructure/Service	Provider	Owner	Capital Funding Source	O&M Funding Source
Water				
Water Supply System	City of Fernley	City of Fernley	User Connection Fees	User Service Fees
Water Mains	Mark IV/Developer	City of Fernley	All Benefitted Private Parties	User Service Fees
Water Service Lines	Mark IV/Developer	City of Fernley	All Benefitted Private Parties	User Service Fees
Water Storage Tanks	Mark IV/Developer	City of Fernley	All Benefitted Private Parties	User Service Fees
Pressure Reducing Stations	Mark IV/Developer	City of Fernley	All Benefitted Private Parties	User Service Fees
Wastewater/Sewer				
Treatment Capacity	City of Fernley	City of Fernley	User Connection Fees	User Service Fees
Sewer Interceptors	City of Fernley	City of Fernley	All Benefitted Private Parties	User Service Fees
Sewer Mains	Mark IV/Developer	City of Fernley	All Benefitted Private Parties	User Service Fees
Lift Stations	Mark IV/Developer	City of Fernley	All Benefitted Private Parties	User Service Fees
Flood Control Management				
Flood Control and Storm Drainage Improvements	Mark IV/Developer	City of Fernley/ Owners Association Or Similar	All Benefitted Private Parties	Dependent on ownership (e.g. property taxes to City of Fernley, assessment to owners association, etc.)
Transportation				

Required Improvements ¹	Mark IV/Developer	City of Fernley	All Benefitted Private Parties	City of Fernley
Regional Improvements ²	Mark IV/Developer	Applicable Government Agency	All Benefitted Private Parties	Applicable Government Agency
Excluded Improvements ³	Applicable Government Agency	Applicable Government Agency	Applicable Government Agency	Applicable Government Agency
Electricity/Natural Gas				
All electricity and natural gas delivery systems	Private Parties (e.g. NV Energy, Southwest Gas) as allowed by the PUCN	Applicable service provider	Applicable service provider and/or All Benefitted Private Parties	User service fees
Police Protection				
Police protection services	LVSO	LVSO	In the event capital improvements required, All Benefitted Private Parties	General tax revenue
Fire Protection				
Fire Station	NLCFPD	NLCFPD	In the event capital improvements required, All Benefitted Private Parties	General tax revenue

¹ Those improvements designated as “Required” in the Funding Category column on the “Victory: Traffic System Phasing Plan” set forth in the Traffic Report.

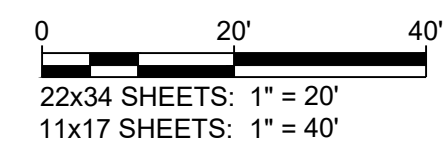
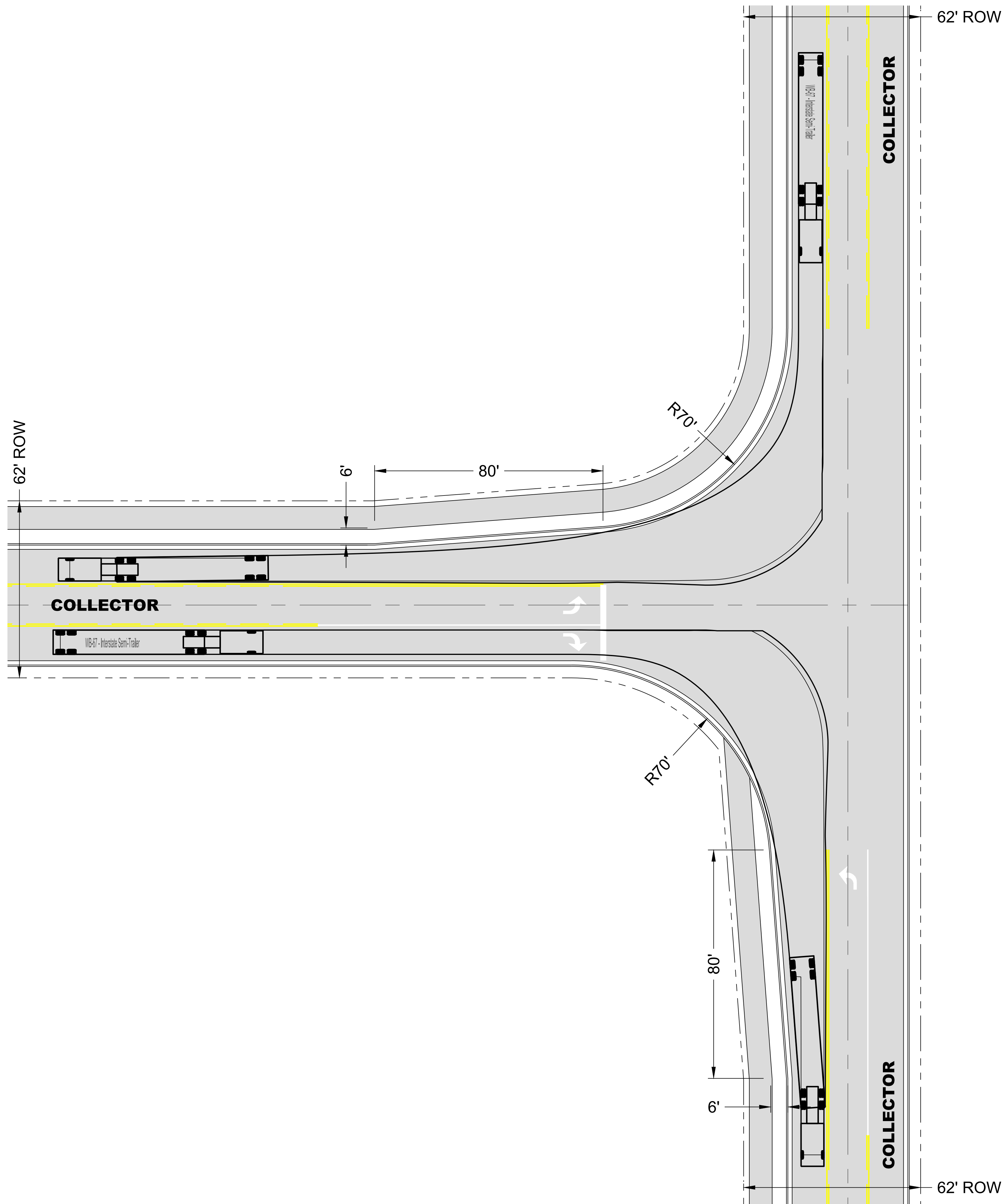
² Those improvements designated as “Regional” in the Funding Category column on the “Victory: Traffic System Phasing Plan” set forth in the Traffic Report.

³ Those improvements designated as “Excluded” or “Excluded (NDOT)” in the Funding Category column on the “Victory: Traffic System Phasing Plan” set forth in the Traffic Report.

Summary of Concurrency Options		
Infrastructure	Full Facilities	Impact Fee, Exactions, Assessment District, and/or Other Funding Mechanisms
Water - New development must demonstrate an adequate water supply system for domestic use plus fire protection before occupancy of each structure per the Water Report and applicable provisions of the Fernley Municipal Code (FMC).	●	
Wastewater/Sewer - New development must connect to the City's sanitary sewer system or other system before occupancy of each structure per the Sewer Report and applicable provisions of the FMC.	●	
Flood Management - New development must demonstrate compliance with the recommendations in the Drainage Report and applicable FMC floodplain management and drainage regulations, as well as all pertinent state and federal regulations, before occupancy of each structure.	●	
Local Roadway Improvements ("Required" Improvements the Traffic Report's "Victory: Traffic System Phasing Plan") - New development must implement and demonstrate compliance with the recommendations in the Traffic Report and local transportation system standards before occupancy of each structure.	●	
Freeways/Federal and State Roadway Improvements ("Regional" Improvements, "Excluded" Improvements, and "Excluded (NDOT)" Improvements in the Traffic Report's "Victory: Traffic System Phasing Plan") - Development that would initiate a traffic impact analysis per FMC, or at the discretion of the Community Development Department, will be forwarded to NDOT for review. Improvements to access roadways, acceleration and deceleration lanes, interchanges and similar upgrades may be required before occupancy of structure if		●

necessary to satisfy the recommendations in the Traffic Report. Otherwise, new development must demonstrate contribution of “fair share” toward “Regional” improvements and otherwise satisfaction of “Excluded” or “Excluded (NDOT)” Improvements recommended in the Traffic Report.		
Electricity/Natural Gas – New development will coordinate with private purveyors of electricity and natural gas to satisfy requirements for delivery of service. Each purveyor shall be required meet all the requirements of the Nevada Public Utilities Commission, and all infrastructure shall satisfy applicable provisions of the FMC.	Not applicable	Not applicable
Police Protection - Before issuance of a building permit, new development shall identify and fund options so that adequate police protection service, as determined by the LVSO, is available as of occupancy of each structure.		●
Fire Protection - Before issuance of a building permit, new development shall identify and fund options so that adequate fire protection service, as determined by NLCFPD, will be met before occupancy of each structure.		●

Appendix A
Intersection Turning Movements



950 SANDHILL ROAD, SUITE 100
RENO, NV 89521
TEL: 775.827.6111

WWW.LUMOSINC.COM
INFO@LUMOSINC.COM

© LUMOS & ASSOCIATES, INC.: THIS DRAWING IS THE PROPERTY OF LUMOS & ASSOCIATES, INC.. USE OR REPRODUCTION OF THIS DRAWING, IN WHOLE OR IN PART, WITHOUT THE WRITTEN PERMISSION OF LUMOS & ASSOCIATES, INC. IS STRICTLY PROHIBITED. THIS DRAWING IS NOT TO BE USED FOR ANY PROJECT OTHER THAN THE PROJECT FOR WHICH IT WAS PREPARED.

M4 NEW FERNLEY QOZB, LLC

VICOTRY LOGISTICS DISTRICT
ROADWAY INTERSECTIONS
COLLECTOR-COLLECTOR RIGHT TURNS

M4 NEW FERNLEY QOZB, LLC

NEVADA

LYON COUNTY

FERNLEY

[illegible]

BAR IS 1 INCH ON ORIGINAL DRAWING

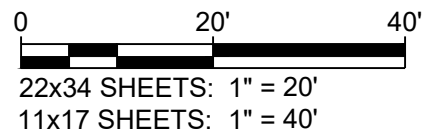
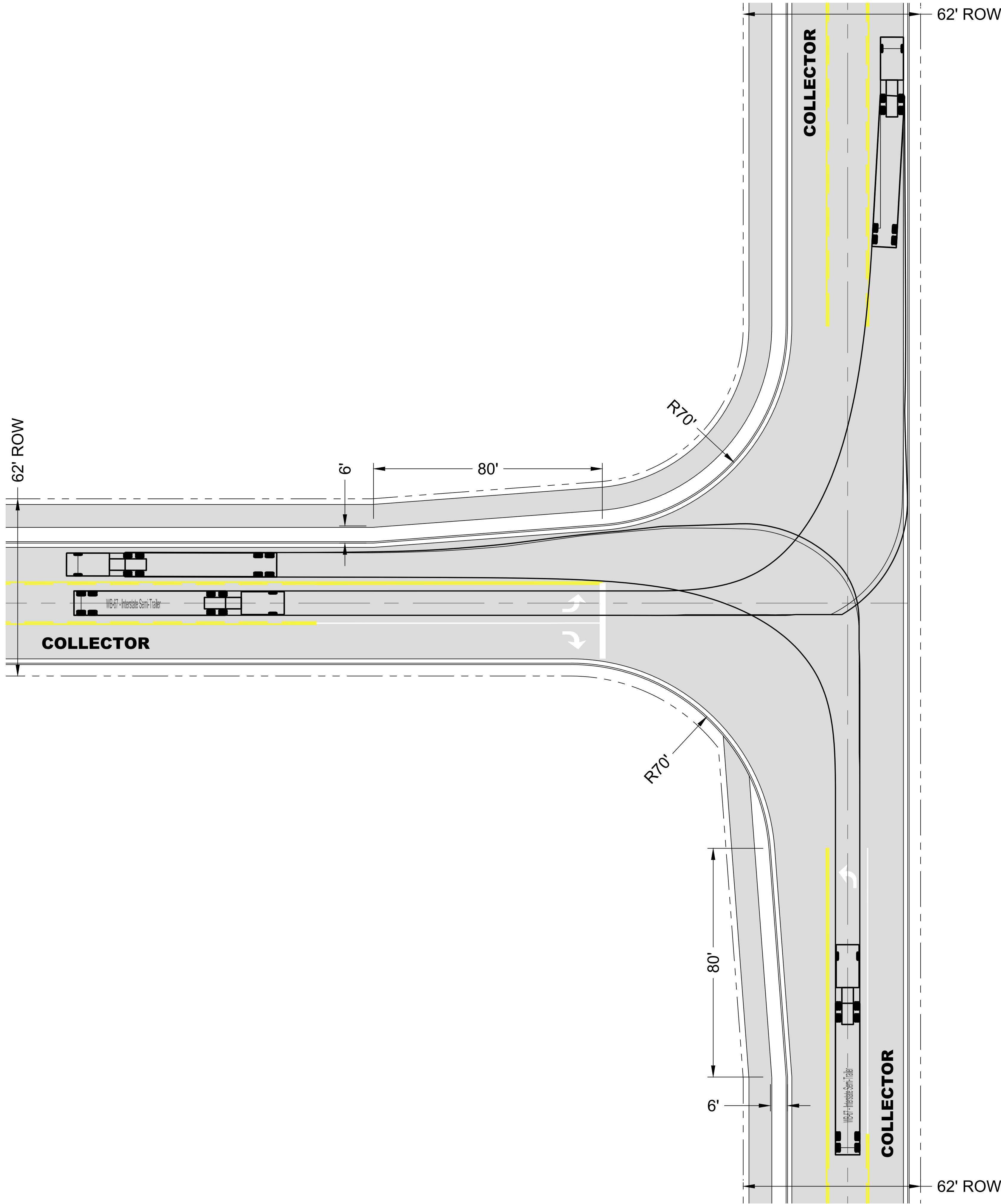


IF NOT ONE INCH ON THIS SHEET
ADJUST SCALES ACCORDINGLY

EXHIBIT

DRAWN BY: JTK
DESIGNED BY: JTK
CHECKED BY: CAB
JOB NO.: 10067.008

L:\AP\10067.008 - Victory Logistics Tentative Map\DWG\Exhibits\Vehicle Tracking Exhibit.dwg,Collector-L, 08/03/2023 08:48 am, JPetron



950 SANDHILL ROAD, SUITE 100
RENO, NV 89521
TEL: 775.827.6111

WWW.LUMOSINC.COM
INFO@LUMOSINC.COM

© LUMOS & ASSOCIATES, INC.: THIS DRAWING IS THE PROPERTY OF LUMOS & ASSOCIATES, INC. USE OR REPRODUCTION OF THIS DRAWING, IN WHOLE OR IN PART, WITHOUT THE WRITTEN PERMISSION OF LUMOS & ASSOCIATES, INC. IS STRICTLY PROHIBITED. THIS DRAWING IS NOT TO BE USED FOR ANY PROJECT OTHER THAN THE PROJECT FOR WHICH IT WAS PREPARED.

M4 NEW FERNLEY 002B, LLC

VICOTRY LOGISTICS DISTRICT
ROADWAY INTERSECTIONS
COLLECTOR-COLLECTOR LEFT TURNS

FERNLEY

LYON COUNTY

NEVADA

REV	DATE	DESCRIPTION	BY

BAR IS 1 INCH ON ORIGINAL DRAWING

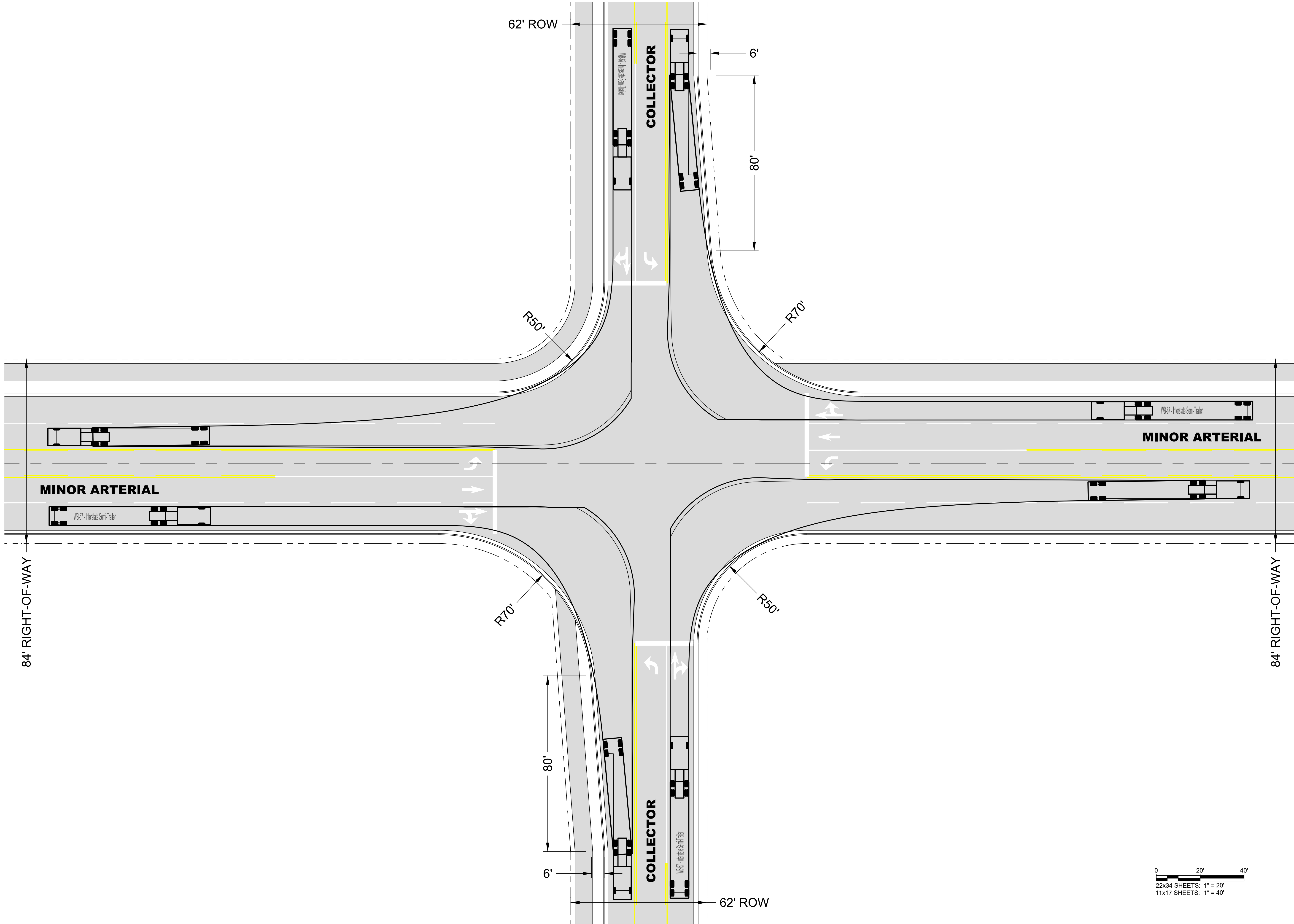
0 1"

IF NOT ONE INCH ON THIS SHEET,
ADJUST SCALES ACCORDINGLY

EXHIBIT

DRAWN BY: JTK
DESIGNED BY: JTK
CHECKED BY: CAB
JOB NO.: 10067.008

L:\AP\10067.008 - Victory Logistics Tentative Map\DWG\Exhibits\Vehicle Tracking Exhibit.dwg;Minor-Collector-R;
08/02/2023 07:52 pm JPetron



950 SANDHILL ROAD, SUITE 100
RENO, NV 89521
TEL: 775.827.6111
WWW.LUMOSINC.COM
INFO@LUMOSINC.COM

© LUMOS & ASSOCIATES, INC. THIS DRAWING IS THE PROPERTY OF LUMOS & ASSOCIATES, INC. USE OR REPRODUCTION OF THIS DRAWING, IN WHOLE OR IN PART, WITHOUT THE WRITTEN PERMISSION OF LUMOS & ASSOCIATES, INC. IS STRICTLY PROHIBITED. THIS DRAWING IS NOT TO BE USED FOR ANY PROJECT OTHER THAN THE PROJECT FOR WHICH IT WAS PREPARED.

M4 NEW FERNLEY 002B, LLC

VICOTRY LOGISTICS DISTRICT
ROADWAY INTERSECTIONS
MINOR ARTERIAL-COLLECTOR RIGHT TURNS

NEVADA
LYON COUNTY
FERNLEY

REV	DATE	DESCRIPTION	BY

BAR IS 1 INCH ON ORIGINAL DRAWING

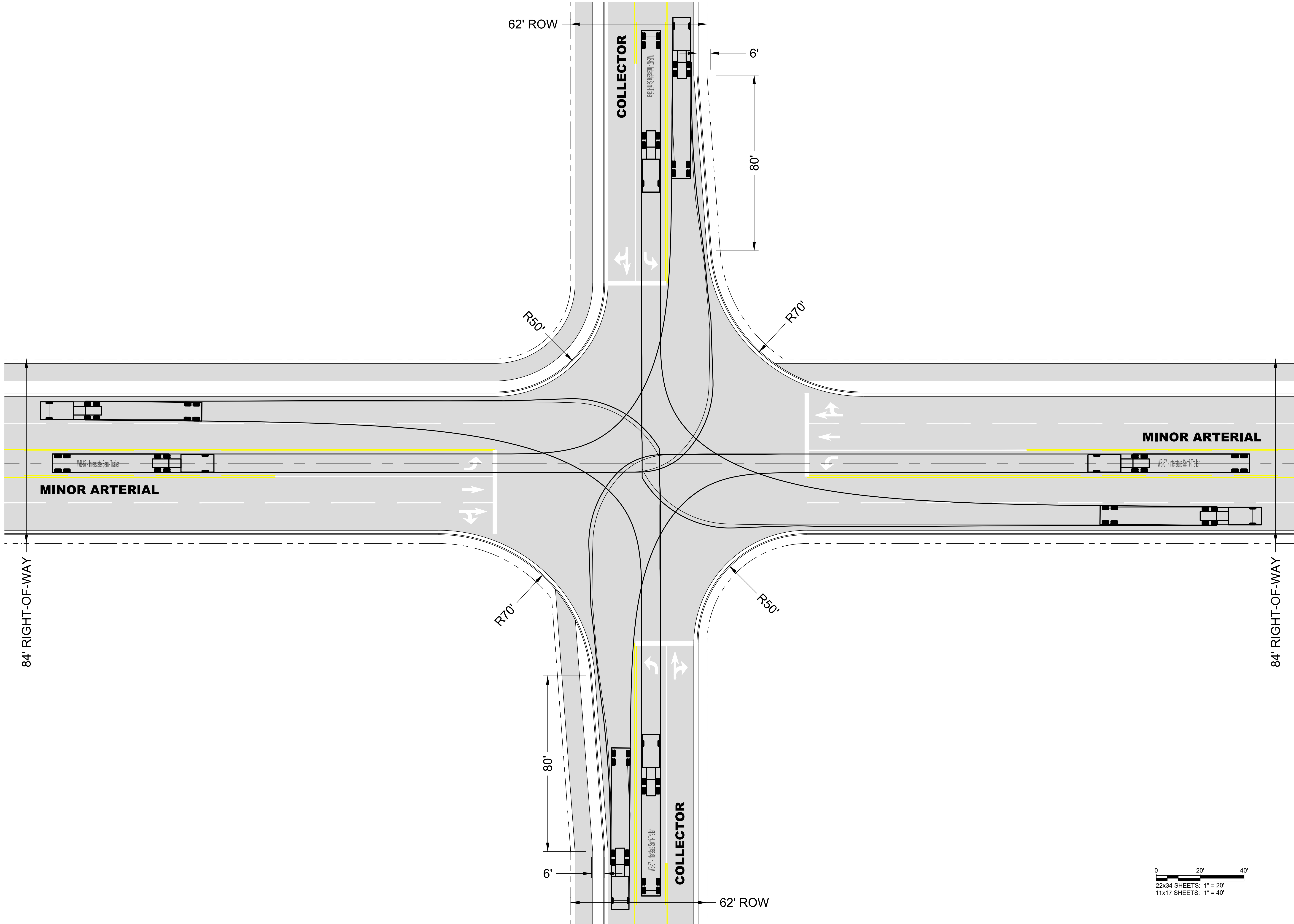
0 1"

IF NOT ONE INCH ON THIS SHEET,
ADJUST SCALES ACCORDINGLY

EXHIBIT

DRAWN BY: JTK
DESIGNED BY: JTK
CHECKED BY: CAB
JOB NO.: 10067.008

L:\AP\10067.008 - Victory Logistics Tentative Map\DWG\Exhibits\Vehicle Tracking Exhibit.dwg;Minor-Collector-L
08/02/2023 07:52 pm #etron



950 SANDHILL ROAD, SUITE 100
RENO, NV 89521
TEL: 775.827.6111
WWW.LUMOSINC.COM
INFO@LUMOSINC.COM

© LUMOS & ASSOCIATES, INC.: THIS DRAWING IS THE PROPERTY OF LUMOS & ASSOCIATES, INC. USE OR REPRODUCTION OF THIS DRAWING, IN WHOLE OR IN PART, WITHOUT THE WRITTEN PERMISSION OF LUMOS & ASSOCIATES, INC. IS STRICTLY PROHIBITED. THIS DRAWING IS NOT TO BE USED FOR ANY PROJECT OTHER THAN THE PROJECT FOR WHICH IT WAS PREPARED.

M4 NEW FERNLEY QOZB, LLC

VICOTRY LOGISTICS DISTRICT
ROADWAY INTERSECTIONS
MINOR ARTERIAL-COLLECTOR LEFT TURNS

FERNLEY

LYON COUNTY

NEVADA

REV	DATE	DESCRIPTION	BY

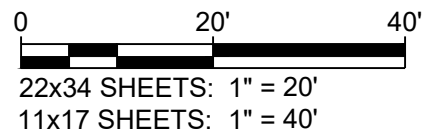
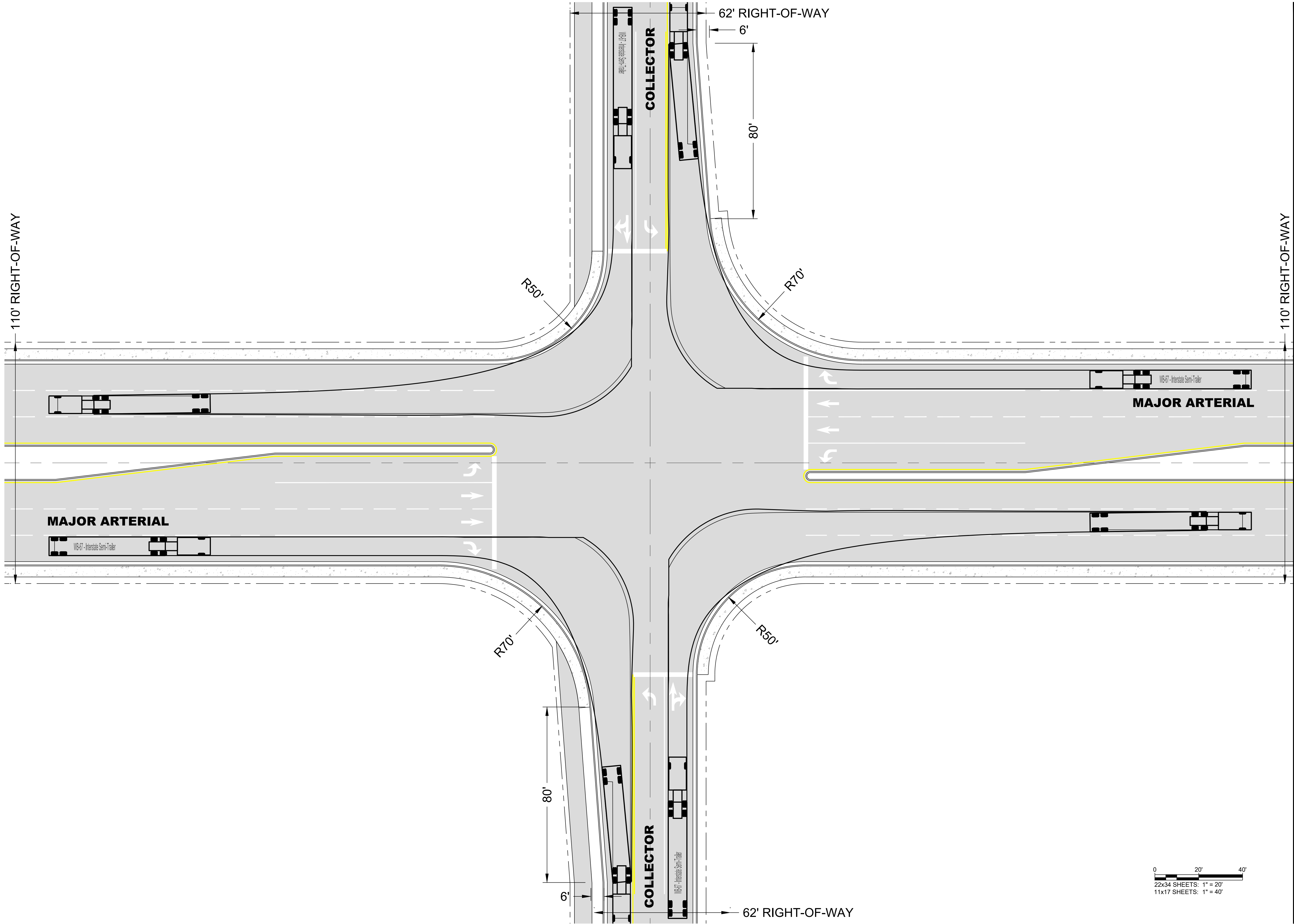
BAR IS 1 INCH ON ORIGINAL DRAWING

IF NOT ONE INCH ON THIS SHEET,
ADJUST SCALES ACCORDINGLY

EXHIBIT

DRAWN BY: JTK
DESIGNED BY: JTK
CHECKED BY: CAB
JOB NO.: 10067.008

L:\AP\10067.008 - Victory Logistics Tentative Map\DWG\Exhibits\Vehicle Tracking Exhibit.dwg;Major-Collector-R;
08/02/2023 07:52 pm JPetron



950 SANDHILL ROAD, SUITE 100
RENO, NV 89521
TEL: 775.827.6111
WWW.LUMOSINC.COM
INFO@LUMOSINC.COM

© LUMOS & ASSOCIATES, INC. THIS DRAWING IS THE PROPERTY OF LUMOS & ASSOCIATES, INC. USE OR REPRODUCTION OF THIS DRAWING, IN WHOLE OR IN PART, WITHOUT THE WRITTEN PERMISSION OF LUMOS & ASSOCIATES, INC. IS STRICTLY PROHIBITED. THIS DRAWING IS NOT TO BE USED FOR ANY PROJECT OTHER THAN THE PROJECT FOR WHICH IT WAS PREPARED.

M4 NEW FERNLEY 002B, LLC

VICOTRY LOGISTICS DISTRICT
ROADWAY INTERSECTIONS
MAJOR ARTERIAL-COLLECTOR RIGHT TURNS

NEVADA

LYON COUNTY

FERNLEY

REV	DATE	DESCRIPTION	BY

BAR IS 1 INCH ON ORIGINAL DRAWING

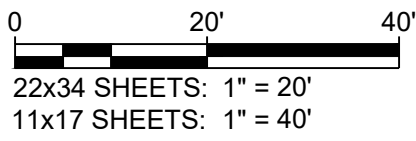
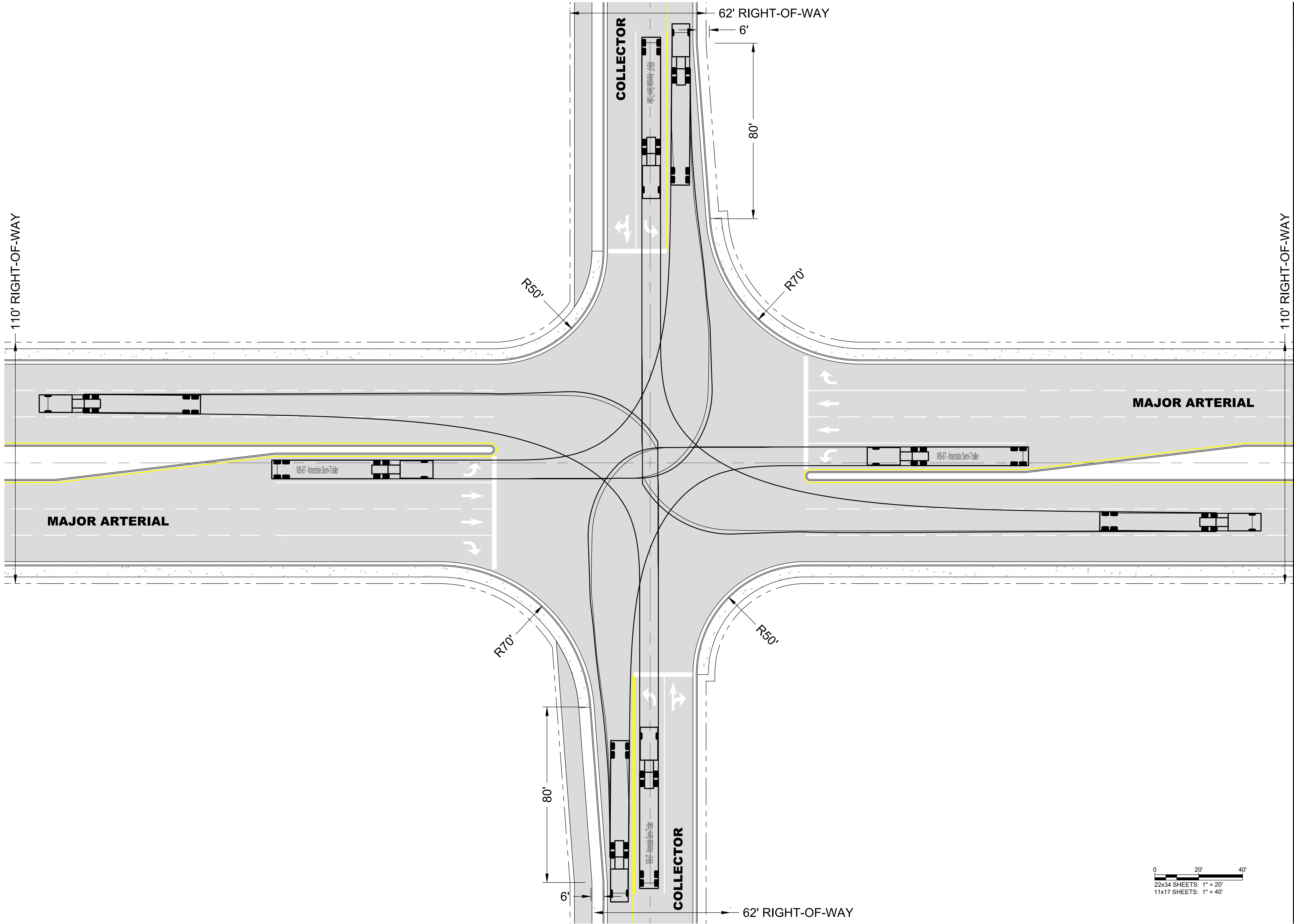


IF NOT ONE INCH ON THIS SHEET,
ADJUST SCALES ACCORDINGLY

EXHIBIT

DRAWN BY: JTK
DESIGNED BY: JTK
CHECKED BY: CAB
JOB NO.: 10067.008

L:\APR\10067.008 - Victory Logistics Tentative Map\DWG\Exhibits\Vehicle Tracking Exhibit.dwg;Major-Collector-L
08/02/2023 07:52 pm JPetron



950 SANDHILL ROAD, SUITE 100
RENO, NV 89521
TEL: 775.827.6111

WWW.LUMOSINC.COM
INFO@LUMOSINC.COM

© LUMOS & ASSOCIATES, INC. THIS DRAWING IS THE PROPERTY OF LUMOS & ASSOCIATES, INC. USE OR REPRODUCTION OF THIS DRAWING, IN WHOLE OR IN PART, WITHOUT THE WRITTEN PERMISSION OF LUMOS & ASSOCIATES, INC. IS STRICTLY PROHIBITED. THIS DRAWING IS NOT TO BE USED FOR ANY PROJECT OTHER THAN THE PROJECT FOR WHICH IT WAS PREPARED.

M4 NEW FERNLEY QOZB, LLC

VICOTRY LOGISTICS DISTRICT
ROADWAY INTERSECTIONS
MAJOR ARTERIAL-COLLECTOR LEFT TURNS

NEVADA

LYON COUNTY

FERNLEY

REV	DATE	DESCRIPTION	BY

BAR IS 1 INCH ON ORIGINAL DRAWING

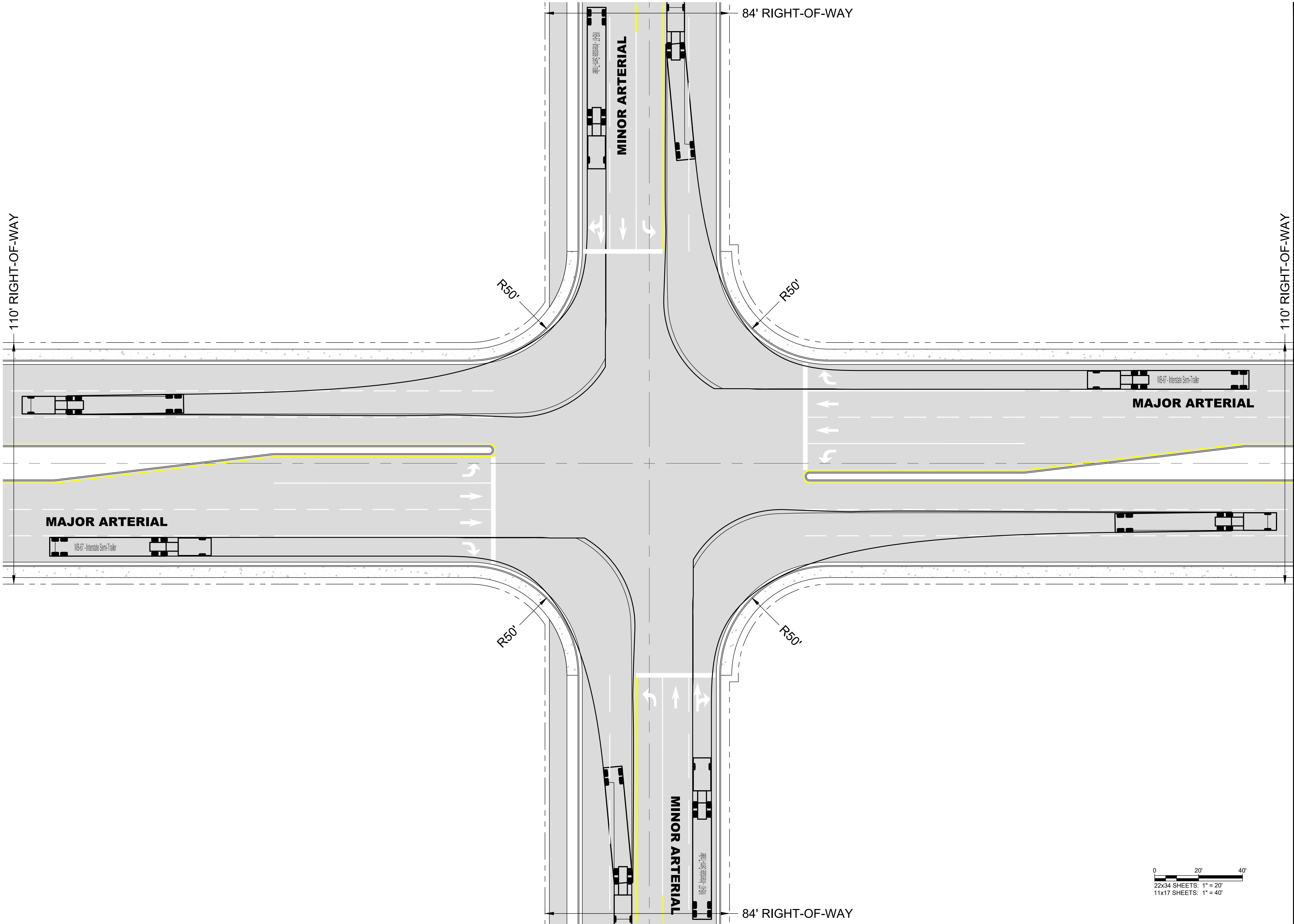
0 1"

IF NOT ONE INCH ON THIS SHEET,
ADJUST SCALES ACCORDINGLY

EXHIBIT

DRAWN BY: JTK
DESIGNED BY: JTK
CHECKED BY: CAB
JOB NO.: 10067.008

L:\AP\10067.008 - Victory Logistics Tentative Map\DWG\Exhibits\Vehicle Tracking Exhibit.dwg;Major-Minor-R;
08/02/2023 07:53 pm JPetron



950 SANDHILL ROAD, SUITE 100
RENO, NV 89521
TEL: 775.827.6111
WWW.LUMOSINC.COM
INFO@LUMOSINC.COM

© LUMOS & ASSOCIATES, INC.: THIS DRAWING IS THE PROPERTY OF LUMOS & ASSOCIATES, INC. USE OR REPRODUCTION OF THIS DRAWING, IN WHOLE OR IN PART, WITHOUT THE WRITTEN PERMISSION OF LUMOS & ASSOCIATES, INC. IS STRICTLY PROHIBITED. THIS DRAWING IS NOT TO BE USED FOR ANY PROJECT OTHER THAN THE PROJECT FOR WHICH IT WAS PREPARED.

M4 NEW FERNLEY QOZB, LLC
VICOTRY LOGISTICS DISTRICT
ROADWAY INTERSECTIONS
MAJOR ARTERIAL-MINOR ARTERIAL LEFT TURNS
FERNLEY NEVADA
LYON COUNTY

REV	DATE	DESCRIPTION	BY

BAR IS 1 INCH ON ORIGINAL DRAWING

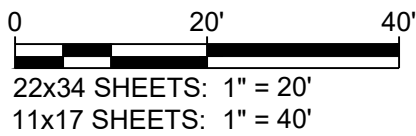
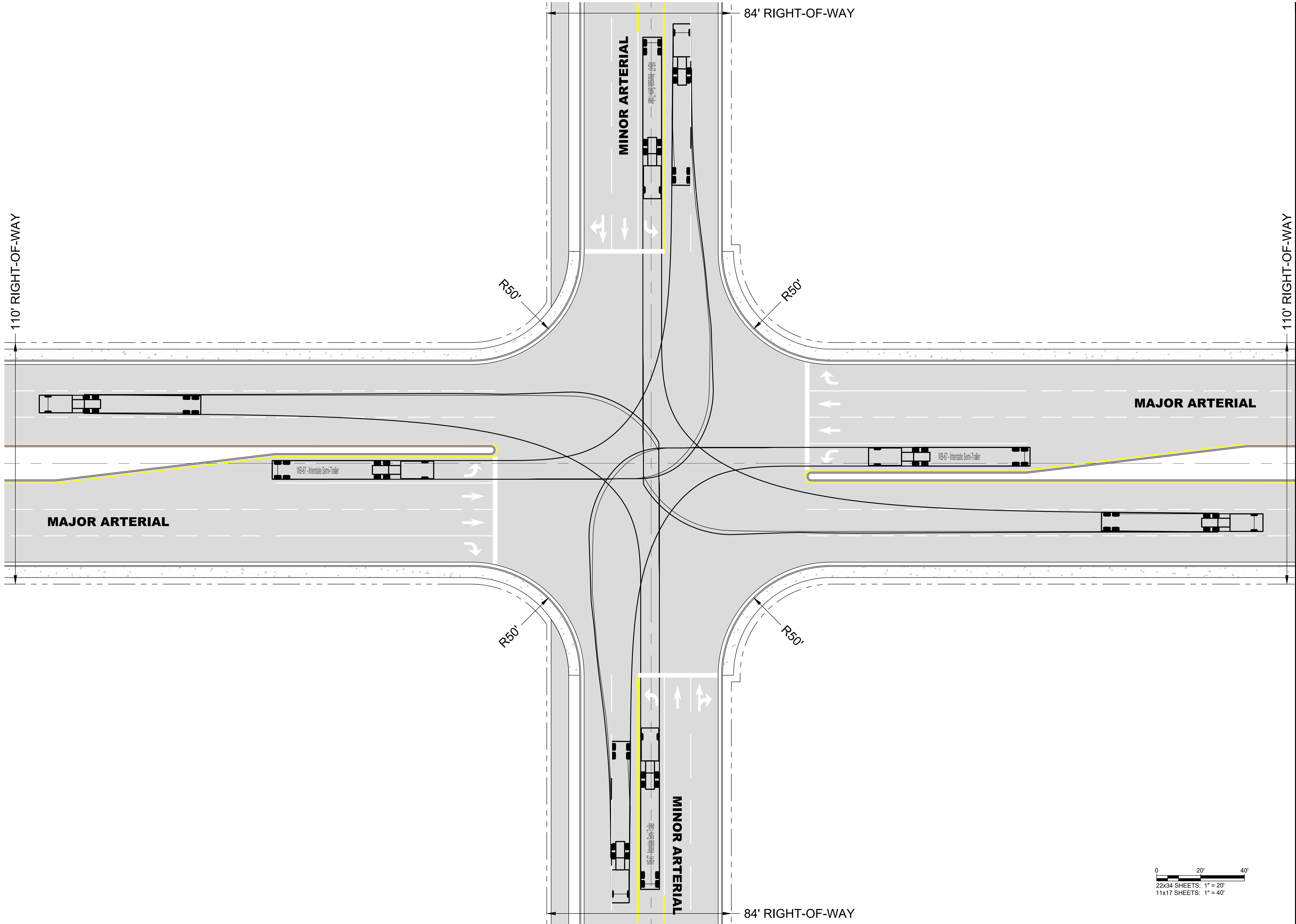
0 1"

IF NOT ONE INCH ON THIS SHEET,
ADJUST SCALES ACCORDINGLY

EXHIBIT

DRAWN BY: JTK
DESIGNED BY: JTK
CHECKED BY: CAB
JOB NO.: 10067.008

L:\APR\10067.008 - Victory Logistics Tentative Map\DWG\Exhibits\Vehicle Tracking Exhibit.dwg;Major-Minor-L
08/02/2023 07:53 pm JPetron



950 SANDHILL ROAD, SUITE 100
RENO, NV 89521
TEL: 775.827.6111
WWW.LUMOSINC.COM
INFO@LUMOSINC.COM

© LUMOS & ASSOCIATES, INC.: THIS DRAWING IS THE PROPERTY OF LUMOS & ASSOCIATES, INC. USE OR REPRODUCTION OF THIS DRAWING, IN WHOLE OR IN PART, WITHOUT THE WRITTEN PERMISSION OF LUMOS & ASSOCIATES, INC. IS STRICTLY PROHIBITED. THIS DRAWING IS NOT TO BE USED FOR ANY PROJECT OTHER THAN THE PROJECT FOR WHICH IT WAS PREPARED.

M4 NEW FERNLEY QOZB, LLC

VICOTRY LOGISTICS DISTRICT
ROADWAY INTERSECTIONS

MAJOR ARTERIAL-MINOR ARTERIAL LEFT TURNS

FERNLEY

LYON COUNTY

NEVADA

REV	DATE	DESCRIPTION	BY

BAR IS 1 INCH ON ORIGINAL DRAWING

0 1"

IF NOT ONE INCH ON THIS SHEET,
ADJUST SCALES ACCORDINGLY

EXHIBIT

DRAWN BY: JTK
DESIGNED BY: JTK
CHECKED BY: CAB
JOB NO.: 10067.008