City of Kuna
Planning & Zoning
Department
P.O. Box 13
Kuna, Idaho 83634
208.922.5274
Fax: 208.922.5989
Website: www.kunacity.id.gov

Preliminary Plat Checklist

Preliminary Plats require public hearings with both the Planning & Zoning Commission and City Council. Public hearing signs will be required to be posted by the applicant for both meetings. Sign posting regulations are available online.

Project name: Ledgestone Subdivision **Applicant:** Jane Suggs / WHPacific

All applications are required to contain one copy of the following:

Applicant (√)	Description	Staff (√)
✓	Completed and signed Commission & Council Review Application.	X
✓	Vicinity map showing relationship of the proposed plat to the surrounding area with a 2-mile radius.	X
✓	Homeowner's maintenance agreement for the care of landscaped common areas.	
✓	Legal description of the preliminary plat area: Include a metes & bounds description to the section line of all adjacent roadways stamped & signed by a registered professional land surveyor with a calculated closure sheet & a map showing the boundaries of the legal description.	X
✓	Proof of ownership—A copy of your deed **and** Affidavit of Legal Interest (for all interested parties involved).	X
✓	Letter of Intent indicating reasons and details for preliminary plat.	X
✓	Commitment of Property Posting form signed by the applicant/agent.	X
TIS underway N/A	If preliminary plat includes 100 lots or more, please submit a traffic impact study. If preliminary plat includes 50 lots or more, please submit an estimate of tax revenue generation and an estimate of the public service costs to provide adequate service to the development.	
✓	A letter from Ada County Engineer with the Subdivision Name reservation. **ANY** name change(s) needs to be submitted and approved by the Planning & Zoning Director and Ada County Engineer.	X
✓	Phasing Plan see plat	
N/A	Include Large Scale Development Requirements. KCC 6-5-4	—
✓	Landscape Plan— (in color)	X
✓	Neighborhood meeting certification (certification & neighborhood meeting list forms shall accompany this application).	X
✓	8 1/2 x 11 proposed preliminary plat.	X
✓	Preliminary plat drawing on 24x36 quality paper drawn to scale of 1 to 100' or more. The following information shall be contained on the preliminary plat: ◊ Topography at two foot (2') intervals ◊ Land uses (location, layout, types & dimensions): residential, commercial & industrial land uses. ◊ Street right-of-ways: dimensions of right-of-way dedication for all roadways, street sections, improvements, etc. ◊ Easements/common space: utility easements, parks, community spaces ◊ Lots: layout and dimensions of lots ◊ Preliminary improvement drawing: show water, sewer, drainage, electricity, irrigation, telephone, natural gas, proposed street lighting, proposed street names, proposed subdivision name, fire hydrant placement, storm water disposal, underground utilities, and sidewalks..	X

Note: Only one copy of the above items need to be submitted when applying for multiple applications. This application shall not be considered complete (nor will a Public Hearing be set) until Staff has received all required information. Once the application is deemed complete, Staff will notify the applicant of the scheduled hearing date, fees due, additional copies needed, etc.

Exhibit A2

City of Kuna
Planning & Zoning
Department
P.O. Box 13
Kuna, Idaho 83634
208.922.5274
Fax: 208.922.5989
Web: Kunacity.id.gov

Annexation Checklist

Annexation requires public hearings with both the Planning & Zoning Commission and City Council. Public hearing signs will be required to be posted by the applicant for both meetings. Sign posting regulations are available online.

Project name: Ledgestone Subdivision

Applicant: Jane Suggs / WHPacific

All applications are required to contain one copy of the following:

Applicant (√)	Description	Staff (√)
✓	Completed and signed Commission & Council Review Application.	X
✓	Letter of Intent indicating reasons for proposed annexation and the availability of public services.	X
✓	Vicinity map drawn to scale, showing the location of the subject property. Map shall contain the following information: Shaded area showing the annexation property, Street names and names of surrounding subdivisions.	X
✓	Legal description of the annexation area: Include a metes & bounds description to the section line of all adjacent roadways stamped & signed by a registered professional land surveyor with a calculated closure sheet & a map showing the boundaries of the legal description.	X
✓	Recorded warranty deed for the property.	X
✓	Proof of ownership—A copy of your deed **and** Affidavit of Legal Interest (All parties involved)	X
N/A	Development Agreement & Development Agreement Checklist	—
✓	Neighborhood meeting certification (certification & neighborhood meeting list forms shall accompany this application).	X
✓	Commitment of Property Posting form signed by the applicant/agent.	X

Note: Only one copy of the above items need to be submitted when applying for multiple applications.

This application shall not be considered complete (nor will a Public Hearing be set) until staff has received all required information. Once the application is deemed complete, staff will notify the applicant of the scheduled hearing date, fees due, additional copies needed, etc.

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Commission & Council Review Application

Note: Engineering fees shall be paid by the applicant if required.

*Please submit the appropriate checklist (s) with application

For Office Use Only	
File Number (s)	18-08-S 18-06-AN 18-35-DR
Project name	Ledgestone Subdivision
Date Received	10/4/18
Date Accepted/ Complete	
Cross Reference Files	
Commission Hearing Date	
City Council Hearing Date	

Type of Review (check all that apply):

- ☒ Annexation
- ☐ Appeal
- ☐ Comprehensive Plan Amendment
- ☐ Design Review
- ☐ Development Agreement
- ☐ Final Planned Unit Development
- ☐ Final Plat
- ☐ Lot Line Adjustment
- ☐ Lot Split
- ☐ Planned Unit Development
- ☒ Preliminary Plat
- ☒ Rezone
- ☐ Special Use
- ☐ Temporary Business
- ☐ Vacation
- ☐ Variance

Contact/Applicant Information

Owners of Record: TJ Johnson	Phone Number:
Address: 2425 N. Locust Grove Road	E-Mail:
City, State, Zip: Kuna, ID 83634	Fax #:
Applicant (Developer): Trilogy Development, Inc	Phone Number: 208-895-8858
Address: 9839 Cable Car Street, Suite 101	E-Mail:
City, State, Zip: Boise, ID 83709	Fax #:
Engineer/Representative: Jane Suggs / WHPacific	Phone Number: 208-275-8729
Address: 2141 W. Airport Way, Suite 104	E-Mail: jsuggs@whpacific.com
City, State, Zip: Boise, ID 83705	Fax #:

Subject Property Information

Site Address: Hubbard Road and Stroebel Road (new), to Locust Grove Road and Mason Creek

Site Location (Cross Streets): E. Hubbard Road, N. Locust Grove Road

Parcel Number (s): S1418121126, S1418123400

Section, Township, Range: Section 18, 2N, 1E

Property size : 60.85 acres

Current land use: farming — Proposed land use: single family subdivision

Current zoning district: RR — Proposed zoning district: R-8

Exhibit A2a

Project Description

Project / subdivision name: Ledgestone Subdivision

General description of proposed project / request: single family homes, some with alleys for rear loaded garages, parks, pathways and open spaces, over 2000 feet of pathway along Mason Creek

Type of use proposed (check all that apply):

- ☒ Residential
- ☐ Commercial
- ☐ Office
- ☐ Industrial
- ☐ Other

Amenities provided with this development (if applicable): park with tot lot, pathways throughout the subdivision, 2000+ feet of pathway along Mason Creek, alley loaded homes

Residential Project Summary (if applicable)

Are there existing buildings? ☐ Yes ☒ No

Please describe the existing buildings:

Any existing buildings to remain? ☐ Yes ☐ No

Number of residential units: 253 Number of building lots: 253

Number of common and/or other lots: 45

Type of dwellings proposed:

- ☒ Single-Family
- ☐ Townhouses
- ☐ Duplexes
- ☐ Multi-Family
- ☐ Other

Minimum Square footage of structure (s):

Gross density (DU/acre-total property): 4.16 Net density (DU/acre-excluding roads): 5.59

Percentage of open space provided: 14% Acreage of open space: 18.51 acres

Type of open space provided (i.e. landscaping, public, common, etc.): parks, Mason Creek path, pathways

Non-Residential Project Summary (if applicable)

Number of building lots: Other lots:

Gross floor area square footage: Existing (if applicable):

Hours of operation (days & hours): Building height:

Total number of employees: Max. number of employees at one time:

Number and ages of students/children: Seating capacity:

Fencing type, size & location (proposed or existing to remain):

Proposed Parking:

a. Handicapped spaces: Dimensions:
b. Total Parking spaces: Dimensions:
c. Width of driveway aisle:

Proposed Lighting:

Proposed Landscaping (berms, buffers, entrances, parking areas, common areas, etc.):

Applicant's Signature: Jane Engh Date: 10/1/18

Ledgestone Subdivision

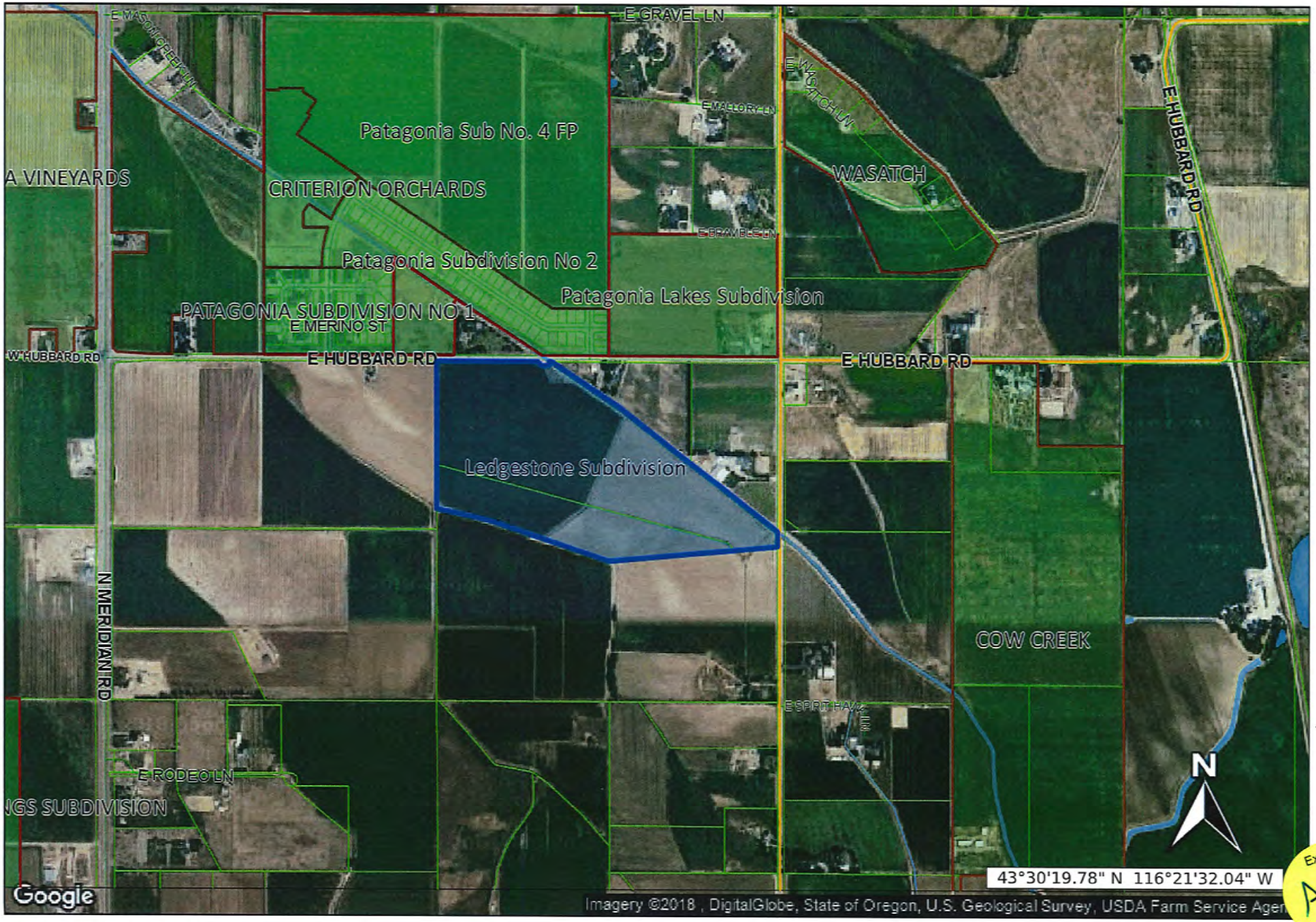


Exhibit A2C

Oct 03, 2018 - landproDATA.com
Scale: 1 inch approx 1000 feet

DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS FOR THE LEDGESTONE SUBDIVISION

_____, 20____

NOTICE

THE FOLLOWING IS A VERY IMPORTANT DOCUMENT WHICH EACH AND EVERY POTENTIAL OWNER OF PROPERTY WITHIN THE LEDGESTONE SUBDIVISION SHOULD READ AND UNDERSTAND. THIS DOCUMENT DETAILS THE OBLIGATIONS AND PROHIBITIONS IMPOSED UPON ALL OWNERS AND OCCUPANTS.

TABLE OF CONTENTS

DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS

FOR THE LEDGESTONE SUBDIVISION

This Declaration of Covenants, Conditions and Restrictions for the Ledgestone Subdivision (this "Declaration") is made effective this _____ day of _____, 20___, by Heartland Homes, LLC, Inc., an Idaho corporation ("Declarant").

ARTICLE I: PROPERTY AND PURPOSE

Section 1. Property Covered. The initial property subject to this Declaration is legally described on the attached Exhibit A, which is made a part hereof ("Property"). The Property is phase 1 of the entire Ledgestone Subdivision as described on the attached Exhibit B, which is made a part hereof ("Ledgestone Subdivision"). It is currently anticipated that the remainder of the Ledgestone Subdivision shall be platted, annexed into the Property and made subject to this Declaration. **Each Owner, as hereinafter defined, covenants and agrees that 1) the remainder of the Ledgestone Subdivision can be platted, annexed into the Property and made subject to this Declaration, and 2) he/she/it shall not contest any such platting, annexation and/or subjection to this Declaration.**

This Declaration is for the benefit of the Declarant, the Association and all Owners of any portion of the Property, as that term is hereafter defined.

Section 2. Purpose of Declaration. The purpose of this Declaration is to set forth the basic Restrictions, as that term is hereafter defined, that will apply to the Property, and use of any and all portions thereof. The Restrictions contained herein are designed to protect, enhance and preserve the value, amenities, desirability, and attractiveness of the Property in a cost effective and administratively efficient manner.

ARTICLE II: DECLARATION

Declarant hereby declares that the Property, and each Lot, Dwelling Unit, parcel or portion thereof, is and/or shall be held, sold, conveyed, encumbered, used, occupied and improved subject to the following terms and Restrictions, all of which are declared and agreed to be in furtherance of a general plan for the protection, maintenance, subdivision, improvement and sale of the Property, and to enhance the value, desirability and attractiveness thereof.

ARTICLE III: DEFINITIONS

Section 1. "Architectural Committee" shall mean the architectural committee of the Association established pursuant to Article X herein.

Section 2. "Assessments" shall mean Regular Assessments, Special Assessments and Limited Assessments.

Section 3. "Association" shall mean the Ledgestone Subdivision Homeowners' Association, Inc., its successors and/or assigns.

Section 4. "Board" shall mean the Board of Directors of the Association.

Section 5. "Common Lots" shall mean all real property (including the Improvements thereto) owned by the Association for the common benefit and enjoyment of the Owners. The Common Lots are legally described on the attached Exhibit C, which is made a part hereof.

Section 6. "Declarant" shall mean Heartland Homes, LLC, Inc., an Idaho corporation, or their permitted assigns.

Section 7. "Dwelling Unit" shall mean single family, detached residential houses to be constructed on each Lot.

Section 8. "Improvement" shall mean any structure, facility or system, or other improvement or object, whether permanent or temporary, which is erected, constructed, placed upon, under or over any portion of the Property, including, without limitation, Dwelling Units, fences, landscaping, streets, roads, drives, driveways, parking areas, sidewalks, bicycle paths, curbs, walls, rocks, signs, lights, mail boxes, electrical lines, pipes, pumps, ditches, waterways, recreational facilities, grading, utility improvements, dog runs and/or kennels, play equipment, and any other exterior construction or exterior improvement which may not be included in the foregoing. Improvement(s) includes both original improvements existing on the Property on the date hereof and/or all later additions and/or alterations.

Section 9. "Limited Assessment" shall mean a charge against a particular Owner and such Owner's Lot, directly attributable to the Owner, equal to the cost incurred by the Association in connection with corrective action performed pursuant to the provisions of this Declaration or any supplemental declaration, including, without limitation, damage to the Common Lots or the failure of an Owner to keep his or her Lot or Dwelling Unit in proper repair.

Section 10. "Lot" shall mean any lot shown on the Plat with the exception of the Common Lots.

Section 11. "Member" shall mean each Person holding a membership in the Association, including Declarant.

Section 12. "Mortgage" shall mean any mortgage, deed of trust, or other document pledging any portion of the Property or interest therein as security for the payment of a debt or obligation.

Section 13. "Owner" shall mean the record owner, other than Declarant, whether one or more Persons, of a fee simple title to any Lot which is a part of the Property, including contract sellers and builders, but excluding those having such interest merely as security for the performance of an obligation.

Section 14. "Person(s)" shall mean any individual, partnership, corporation or other legal entity, including Declarant.

Section 15. "Plat" shall mean the Ledgestone Subdivision No. 1 final plat filed in Book ____ of Plats at Pages _____ through _____, Records of Ada County, Idaho, a copy of which is

attached hereto as Exhibit D, and made a part hereof.

Section 16. "Pressurized Irrigation System" shall mean that certain non-potable water irrigation delivery system further described in Article V.

Section 17. "Property" shall mean that certain real property legally described on the attached Exhibit A,, and such other annexations or other additions thereto as may hereafter be brought within the jurisdiction of this Declaration.

Section 18. "Regular Assessments" shall mean the cost of maintaining, improving, repairing, managing and operating the Common Lots, including all Improvements thereon or thereto, and all other costs and expenses incurred to conduct the business and affairs of the Association which is levied against the Lot of each Owner by the Association, pursuant to the terms of this Declaration or any supplemental declaration.

Section 19. "Restrictions" shall mean the restrictions, covenants, limitations, conditions and equitable servitudes that will apply to the Property and use of any and all portions thereof as specified in this Declaration.

Section 20. "Special Assessments" shall mean that portion of the costs of the capital improvements or replacements, equipment purchases and replacements or shortages in Regular Assessments paid to the Association pursuant to the provisions of this Declaration or any supplemental declaration.

ARTICLE IV: GENERAL USES AND REGULATION OF USES

Section 1. Single Family Lots. Each Lot shall be used for detached single family residential purposes only, and for the common social, recreational or other reasonable uses normally incident to such use, and also for such additional uses or purposes as are from time to time determined appropriate by the Board. Lots may be used for the purposes of operating the Association and for the management of the Association if required. The provisions of this Section shall not preclude Declarant from conducting sales, construction, development and related activities from Lots owned by Declarant.

No shack, tent, trailer house, basement only, split entry, manufactured, mobile or pre-built homes shall be allowed. No Dwelling Units shall be more than two stories above ground.

Section 2. Common Lots. The Association shall own and be responsible for the maintenance, repair and replacement of the Common Lots including any and all Improvements located thereon. The Association shall maintain and operate these Common Lots in a competent and attractive manner, including the watering, mowing, fertilizing and caring for any and all lawns, shrubs and trees thereon. Nothing shall be altered or constructed in or removed from the Common Lots except upon written consent of the Board and in accordance with procedures required herein and by law. Every Owner shall have a right and easement of enjoyment in and to the Common Lots which shall be appurtenant to and shall pass with the title to every Lot, subject to the following provisions:

(a) the right of the Association to charge reasonable admission and other fees or Assessments for the use of any recreational facility situated upon a Common Lot;

(b) the right of the Association to adopt rules and regulations governing the use of any

recreational facility situated upon a Common Lot; and

(c) the right of the Association to suspend the voting rights and use of any recreational facility by an Owner for any period during which any Assessment remains unpaid and/or for any infraction of its rules and regulations.

The Common Lots cannot be mortgaged, conveyed or encumbered without the approval of at least two-thirds (2/3) of the Class A Members. If ingress or egress to any Lot is through any portion of the Common Lots, any such conveyance or encumbrance shall be subject to an easement of the Owners for the purpose of ingress and egress.

Section 3. Home Occupations. Assuming all governmental laws, rules, regulations, and ordinances are complied with, home occupations may be conducted from the interior of Dwelling Units **provided such home occupations do not increase the burdens on the streets within the Property (including increased traffic).** If the Board determines, in its sole and absolute discretion, that a home occupation is increasing the burden on the streets, the Board shall have the right to terminate any Owner's ability to conduct a home occupation from his or her Dwelling Unit. Notwithstanding the foregoing, Declarant may conduct any business operation they see fit from any portion of the Property owned by them, regardless of the impact on the streets.

Section 4. Vehicle Storage. Unenclosed areas, which include driveways and all other unenclosed areas within the Property, are restricted to use for temporary parking of operative motor vehicles of Owners and their guests, invitees and licensees, provided that such vehicles are parked so as to not interfere with any other Owner's right of ingress and egress to his or her Dwelling Unit. Notwithstanding the foregoing, the parking of equipment (lawn or otherwise), inoperative vehicles, motor homes, campers, trailers, boats, any other recreational vehicles and other items on the Property is strictly prohibited unless parked within an Owner's garage (and said garage door is closed) or other enclosed area approved by the Architectural Committee.

The Board may remove any inoperative vehicle, or any unsightly vehicle, and any other vehicle, motor home, camper, trailer, boat, equipment or item improperly parked or stored after three (3) days' written notice, at the risk and expense of the owner thereof.

Section 5. Compliance With Laws, Rules and Ordinances. No Owner shall permit anything to be done or kept in his or her Lot or Dwelling Unit or any part of the Common Lots which would be in violation of any laws, rules, regulations or ordinances.

Section 6. Signs. No sign of any kind shall be displayed on any Lot or Dwelling Unit without the prior written consent of the Board; provided however, one sign of not more than five (5) square feet advertising the Lot for sale may be installed on any Lot, but the sign shall be removed within five (5) days following sale. Notwithstanding the foregoing, Declarant may display any sign they see fit on any portion of the Property owned by Declarant.

Section 7. Pets. No animals (which term includes livestock, domestic animals, poultry, reptiles and any other living creature of any kind) shall be raised, bred or kept in any Dwelling Unit, Lot or in the Common Lots, whether as pets or otherwise; provided however, that this provision shall not prohibit Owners from having two (2) or less dogs and/or cats (i.e. an Owner may have a maximum of two (2) dogs, two (2) cats or one (1) dog and one (1) cat). The Board may at any time require the removal of any animal, including domestic dogs and cats, which it finds is creating unreasonable noise or otherwise disturbing the

Owners unreasonably, in the Board's determination, and may exercise this authority for specific animals even though other animals are permitted to remain. All dogs shall be walked on a leash only and shall not be allowed to roam or run loose, whether or not accompanied by an Owner or other person. All Owners shall be responsible for picking up and properly disposing of all organic waste of their domestic dogs and cats.

Section 8. Nuisance. No noxious or offensive activity shall be carried on in any Dwelling Unit, Common Lots or Lot, nor shall anything be done therein which may be or become an annoyance or nuisance to other Owners. No rubbish or debris of any kind shall be placed or permitted to accumulate anywhere upon the Property, including the Common Lots, and no odor shall be permitted to arise from any portion of the Property so as to render the Property or any portion thereof unsanitary, unsightly, offensive or detrimental to the Property or to its occupants or residents, or to any other property in the vicinity thereof. No noise, obstructions to pedestrian walkways, unsightliness, or other nuisance shall be permitted to exist or operate upon any portion of the Property so as to be offensive or detrimental to the Property or to its occupants or residents or to other property in the vicinity thereof, as determined by the Board, in its reasonable judgment, or in violation of any federal, state or local law, rule, regulation or ordinance. Without limiting the generality of any of the foregoing, no whistles, bells or other sound devices (other than security devices used exclusively for security purposes which have been approved by the Architectural Committee), flashing lights or search lights, shall be located, used or placed on the Property. No unsightly articles shall be permitted to remain on any Lot so as to be visible from any other portion of the Property. Without limiting the generality of the foregoing, refuse, garbage, garbage cans, trash, trash cans, dog houses, equipment, gas canisters, propane gas tanks, barbecue equipment, heat pumps, compressors, containers, lumber, firewood, grass, shrub or tree clippings, metals, bulk material, and scrap shall be screened from view at all times. No clothing or fabric shall be hung, dried or aired in such a way as to be visible to any other portion of the Property. In addition, no activities shall be conducted on the Property, and no Improvements shall be constructed on any Property which are or might be unsafe or hazardous to any Person or property.

Section 9. Exterior Improvements, Appearance and Emergency Maintenance. **No Owner shall install or place any item or construct any Improvement on any Lot or the exterior of his or her Dwelling Unit without the prior written consent of the Architectural Committee. In addition, all Owners shall keep and maintain their Lots and Dwelling Unit exteriors in a repaired, attractive, clean and habitable condition as determined by the Board in its reasonable judgement. In the event any Owner does not satisfy this standard, the Board and its agents or employees, may, after thirty (30) days' prior written notice to such Owner: 1) levy a fine against said Owner equal to $25/day for as long as the violation persists, and/or 2) enter such Lot to make such repairs or perform such maintenance as to bring such Lot and/or Dwelling Unit exterior into compliance with this Section. Any such fines and any cost incurred by the Association for repairs and maintenance shall be treated as Limited Assessments to such Owner.**

In the event any Owner does not satisfy this standard, the Board and its agents or employees, may, after thirty (30) days' prior written notice to such Owner, enter such Lot to make such repairs or perform such maintenance as to bring such Lot and/or Dwelling Unit exterior into compliance with this Section. The cost of any such repairs and maintenance shall be treated as a Limited Assessment to such Owner. In the event an emergency which in the judgment of the Board presents an immediate threat to the health and safety of the Owners, their guests or invitees, or an immediate risk of harm or damage to any Lot, Dwelling Unit or any other part of the Property, the Board and its agents or employees, may enter any Lot to make repairs or perform maintenance. Such entry shall be repaired by the Board out of the common expense fund if the entry was due to an emergency (unless the emergency was caused by an Owner in which case the

cost shall be treated as a Limited Assessment and charged only to that Owner). If the repairs or maintenance were requested by an Owner, the costs thereof shall be treated as a Limited Assessment to such Owner.

Section 10. Outbuildings. All outbuildings shall be pre-approved in writing by the Architectural Committee and be constructed of quality building material, completely finished and painted on the outside and shall be of quality and character that will be in harmony with the other buildings on the Property.

Section 11. Fences. Fences are not required. If a fence is desired, plans for such fence shall be pre-approved in writing by the Architectural Committee. Fences shall be of good quality and workmanship and shall be properly finished and maintained. Fences may be built of wood, such as dog eared cedar, vinyl or wrought iron. Chain link fences are prohibited. Interior fencing adjacent to any Common Lots shall allow visibility from the street or, if solid fencing is used, shall not exceed four feet (4') in height. No fence shall be higher than six feet (6') in height. Fences shall not be built closer to the front of a Lot than the corner of the Dwelling Unit on either side. The location of fences, hedges, high plantings, obstructions, or barriers shall be so situated as to not unreasonably interfere with the enjoyment and use of any other portion of the Property and shall not be allowed to constitute an undesirable, nuisance or noxious use.

Section 12. Antennae. Antennae and/or satellite or other dishes shall be placed in the back yards or mounted on the back or side of all Dwelling Units and shall be placed and/or mounted in such a way to minimize the visual impact to all other portions of the Property.

Section 13. Insurance. Nothing shall be done or kept in any Dwelling Unit, Lot or Common Lots which will increase the rate of insurance on the Common Lots or any other Dwelling Unit or Lot. Each Owner must maintain a homeowner's insurance policy insuring the homeowner from loss by fire, theft, and all other loss or damage.

Section 14. Drainage. All Lots and Common Lots shall be graded such that all storm water and other water drainage shall run across a curb or to a drainage easement and no drainage shall cross from a Lot or Common Lot onto another Lot or Common Lot except within an applicable drainage easement.

Section 15. Garages. Garages shall be well constructed of good quality material and workmanship. All Dwelling Units shall have attached, enclosed garages which hold no less than two vehicles. To the extent possible, garage doors must remain closed at all times.

Section 16. Construction Commencement, Completion and Other Activities. Each Owner of a Lot originally purchased from Declarant must commence construction of his or her Dwelling Unit and all other Lot Improvements within one year from the closing date thereof, unless otherwise agreed by Declarant. Once such construction has commenced, such Owner shall have twelve months from the commencement date in which to complete construction of the Dwelling Unit and all other Lot Improvements. **In the event any Owner violates either (or both) of the construction time requirements contained herein, said Owner shall pay to Declarant a penalty of $100/day for as long as the violation persists. This penalty is applicable to both the construction commencement and construction completion requirements.** Any penalty, or penalties, shall be due and payable within thirty days of receiving an invoice therefore.

Section 17. Construction Equipment. No construction machinery, building equipment, or material shall be stored upon any Lot until the Owner is ready and able to immediately commence construction. Such machinery, equipment and materials must be kept within the boundaries of the Lot.

Section 18. Initial Landscaping. Construction of any Dwelling Unit on any Lot shall include the following minimum Front yard landscaping:

Two -2" caliper trees;
Three -5 gallon plants; and
Five -2 gallon plants.

This landscaping must be completed prior to the issuance of an occupancy permit for the Dwelling Unit. This landscaping requirement shall be applicable to Declarant as well as any Owner.

(a) Construction of any Dwelling Unit on any Lot adjacent to common area lots shall include the following minimum Rear yard landscaping:

Two -2" caliper trees;
Three -5 gallon plants; and
Five -2 gallon plants.

This landscaping must be completed prior to the issuance of an occupancy permit for the Dwelling Unit. This landscaping requirement shall be applicable to Declarant as well as any Owner.

Section 19. Damage to Improvements. It shall be the responsibility of an Owner to leave street curbs, sidewalks, fences, utility facilities, tiled irrigation lines, if any, and any other existing Improvements free of damage and in good and sound condition during any construction period. It shall be conclusively presumed that all such Improvements are in good sound condition at the time building has begun on each Lot unless the contrary is shown in writing at the date of conveyance or by date of possession, whichever date shall first occur, which notice is addressed to a member of the Architectural Committee.

Section 20. Garbage Pick-Up. Garbage and recycle containers shall be placed on the appropriate sidewalks or driveways only on garbage and recycle collection days, and such containers must be removed no later than 8:00pm that evening.

Section 21. No Further Subdivision. No Lot may be further subdivided; provided, however, that this Section is not applicable to Declarant who may further subdivide any Lot owned by it.

ARTICLE V: PRESSURIZED IRRIGATION SYSTEM

Non-potable (non-drinkable) irrigation water will be supplied to the Property by the City of Kuna ("District") utilizing a pressurized irrigation system which may include main lines, pumps, sprinkling clocks, service lines, values, and other facilities located on or near the Property ("Pressurized Irrigation System").

The Pressurized Irrigation System will be used for all irrigation, including the irrigation of the Common Lots and Lots. By accepting a deed to any portion of the Property, each Owner hereby agrees to pay its proportionate share of Association Assessments and District assessments associated

with the operation and maintenance of the Pressurized Irrigation System. In addition, each Owner covenants and agrees to hold the Association and Declarant harmless from any and all liability for damages or injuries to their children, guests, agents, or invitees caused by the Pressurized Irrigation System.

ARTICLE VI: INSURANCE

Section 1. Insurance. The Association may obtain insurance from insurance companies authorized to do business in the State of Idaho, and maintain in effect any insurance policy the Association deems necessary or advisable, which shall include, without limitation, the following policies to the extent its is possible for the Association to obtain the same:

(a) Fire insurance including those risks embraced by coverage of the type known as the broad form or "All Risk" or special extended coverage endorsement on a blanket agreed amount basis for the full insurable replacement value of all Improvements, equipment and other property located within the Common Lots;

(b) Comprehensive general liability insurance insuring the Association and its agents and employees, invitees and guests against any liability incident to the ownership, management, maintenance and/or use of the Common Lots;

(c) Such other insurance to the extent necessary to comply with all applicable laws and such indemnity, faithful performance, fidelity and other bonds as the Association shall deem necessary or required to carry out the Association functions or to insure the Association against any loss from malfeasance or dishonesty of any employee or other person charged with the management or possession of any Association funds or other property.

Section 2. Premiums Included in Assessments. Insurance premiums for the above insurance coverage shall be deemed a common expense to be included in the Regular Assessments levied by the Association.

ARTICLE VII: MEMBERSHIP AND VOTING RIGHTS

Section 1. Membership. Every Owner of a Lot shall be a Member of the Association. Membership shall be appurtenant to and may not be separated from ownership of any Lot which is subject to assessment.

Section 2. Voting Classes. The Association shall have two (2) classes of voting memberships:

Class A. Class A Members shall be all Owners and shall be entitled to one vote for each Lot owned. When more than one Person holds an interest in any Lot, all such Persons shall be Members. The vote for such Lot shall be exercised as they determine, but in no event shall more than one (1) vote be cast with respect to any Lot.

Class B. The Class B Member shall be the Declarant and shall be entitled to five (5) votes for each Lot owned. The Class B membership shall cease when, and if, Declarant has sold all Lots within the Property.

ARTICLE VIII: COVENANT FOR MAINTENANCE ASSESSMENTS

Section 1. Creation of the Lien and Personal Obligation of Assessments. **Each Owner of any Lot by acceptance of a deed therefore is deemed to covenant and agree to pay to the Association all Assessments levied thereby. In addition, each Owner upon the purchase of a Lot and Dwelling Unit shall pay a one-time "start-up" assessment for use by the Association.** This one-time start-up assessment shall only be used by the Association for the operation of the Association and/or the performance of its duties and obligations contained herein. All Assessments, together with interest, costs, late fees and reasonable attorneys' fees, shall be a continuing lien upon the Lot against which each such Assessment is made. Each such Assessment, together with interest, costs, and reasonable attorneys' fees, shall also be the personal obligation of the Person who was the Owner of such Lot at the time when the Assessment fell due. The personal obligation for delinquent Assessments shall not pass to his or her successors in title unless expressly assumed by them. **Declarant has no obligation to pay Assessments.**

Section 2. Purposes of Assessments. The Assessments levied by the Association shall be used exclusively to promote the recreation, health, safety, and welfare of the residents in the Property and for any construction, maintenance, and operation of the Common Lots.

Section 3. Uniform Rate of Assessment. Regular and Special Assessments must be fixed at a uniform rate for all Lots.

Section 4. Date of Commencement of Annual Assessments; Due Dates. The Regular Assessments provided for herein shall commence as to all Lots on the first day of the month following the closing of the sale of a Lot from Declarant to an Owner. The first annual assessment shall be pro-rated according to the number of months remaining in the calendar year. Subsequently, the Board shall fix and notify all Owners in writing of the amount of the Regular Assessments against each Lot at least thirty (30) days in advance of each annual Regular Assessment period. The due dates shall be established by the Board, which may be annually, quarterly or monthly as the Board, in its sole discretion, shall determine. The Association shall, upon demand, and for a reasonable charge, furnish a certificate signed by an officer of the Association setting forth whether the Assessments on a specific Lot have been paid. A properly executed certificate of the Association as to the status of Assessments on a Lot is binding upon the Association as of the date of its issuance.

Section 5. Effect of Nonpayment of Assessments; Remedies of the Association. Any Assessment not paid within thirty (30) days after the due date shall bear interest from that date at a rate equal to the lesser of twelve percent (12%) or the highest rate allowed by applicable law. Additionally, a late fee of $50.00 shall be added to and charged on each Assessment which is not paid within this payment period. The Association may bring an action at law against the Owner personally obligated to pay the same, or foreclose the lien against the Lot. No Owner may waive or otherwise escape liability for the Assessments provided for herein by non-use of the Common Lots or abandonment of his or her Lot.

Section 6. Subordination of the Lien to Mortgages. The lien of the Assessments provided for herein shall be subordinate to the lien of any first Mortgage. Sale or transfer of any Lot shall not affect the Assessment lien. However, the sale or transfer of any Lot pursuant to mortgage foreclosure or any proceeding in lieu thereof, shall extinguish the lien of such Assessments as to payments which became due prior to such sale or transfer. No sale or transfer shall relieve such Lot from liability for any Assessments thereafter becoming due or from the lien thereof.

ARTICLE IX: AUTHORITY OF BOARD OF DIRECTORS

Section 1. Authority of Board. The Board, for the benefit of the Association and the Owners, shall enforce the provisions of this Declaration and the Association's articles and by-laws, shall have all powers and authority permitted to the Board under the Association's articles of incorporation and by-laws and this Declaration, and shall acquire and shall pay for, out of a common expense fund to be established by the Board, all goods and services requisite for the proper functioning of the Association and the Property, including, but not limited to, the following:

(a) Operation, maintenance and management of the Common Lots, including repair and replacement of property damaged or destroyed by casualty loss.

(b) Water, sewer, garbage collection, electrical, and any other utility service as required for the Common Lots and Pressurized Irrigation System. The Board may arrange for special metering of utilities as appropriate.

(c) Maintenance and repair of storm drains located on the Property, if any, except for those storm drains located on or within the right-of-way of any street, road, alley or other land dedicated to public use.

(d) Policies of insurance providing coverage for fire and other hazard, public liability and property damage, and fidelity bonding as the same are more fully described in the by-laws or this Declaration. **Each Owner shall be responsible for the insurance for his or her Lot, Dwelling Unit and personal property.**

(e) The services of Persons as required to properly manage the affairs of the Association to the extent deemed advisable by the Board as well as such other personnel as the Board shall determine are necessary or proper for the operation of the Property.

(f) Legal and accounting services necessary or proper in the operation of the Association's affairs, administration of the Property, or the enforcement of this Declaration.

(g) Any other materials, supplies, labor services, maintenance, repairs, structural alterations, insurance, taxes or assessments which the Board is required to secure by law or which in its opinion shall be necessary or proper for the operation of the Property or for the enforcement of this Declaration.

(h) The Board shall not incur any non-budgeted expenditure in excess of $3,000.00 without the approval thereof by two-thirds (2/3) of each class of Members voting thereon at a meeting called for such purpose, except for an emergency threatening the security of any Improvement on the Property.

The Board shall have the absolute right to adopt any rules and regulations it deems to be in the best interest of the Property and the Owners. By accepting a deed to any portion of the Property, all Owners hereby covenant that they will adhere to any such rules or regulations. In addition, the Board shall have the absolute right to hire or otherwise contract with independent third parties to operate, maintain and manage the Common Lots, and to perform any other right, duty or obligation of the Board or Association.

Section 2. Easement. The Association and Board, and their agents and employees, shall have, and are hereby granted, a permanent easement of ingress and egress to enter upon each Lot for the

purposes of performing repairs, maintenance and care of the Property as provided herein and for otherwise discharging the responsibilities and duties of the Association and Board as provided in this Declaration.

Section 3. Non-Waiver. The failure of the Board in any one or more instances to insist upon the strict performance of any of the terms or Restrictions of this Declaration, or of the Association's articles of incorporation or by-laws, or to exercise any right or option contained in such documents, or to serve any notice or to institute any action, shall not be construed as a waiver or a relinquishment for the future of such term, or Restriction, but such term, or Restriction shall remain in full force and effect. Failure by the Board to enforce any such term or Restriction shall not be deemed a waiver of the right to do so thereafter, and no waiver by the Board of any provision hereof shall be deemed to have been made unless expressed in writing and signed for the Board. This Section also extends to the Declarant exercising the powers of the Board during the initial period of operation of the Association.

Section 4. Limitation of Liability. The Board shall not be liable for any failure of any utility or other service to be obtained and paid for by the Board, or for injury or damage to a Person or property caused by the elements, or by another Owner or Person; or resulting from electricity, gas, water, rain, dust or sand which may lead or flow from pipes, drains, conduits, appliances, or equipment, or from articles used or stored by Owners on the Property or in Dwelling Units. No diminution or abatement of common expense assessments shall be claimed or allowed for inconveniences or discomfort arising from the making of repairs or Improvements to the Property or from any action taken to comply with any law, ordinance, or order of a governmental authority. This Section shall not be interpreted to impose any form of liability by implication, and shall extend to and apply also for the protection of the Declarant exercising the powers of the Board during the initial period of operation of the Association and the Property.

Section 5. Indemnification of Board Members. Each member of the Board shall be indemnified by the Association and the Owners against all expenses (including attorneys' fees), judgments, liabilities, fines and amounts paid in settlement, or actually and reasonably incurred, in connection with any action, suit or proceeding, whether civil, criminal, administrative or investigative instituted by or against the Association or against the Board member and incurred by reason of the fact that he or she is or was a Board member, if such Board member acted in good faith and in a manner such Board member believed to be in or not opposed to the best interests of the Association, and, with respect to any criminal action or proceeding, had no reasonable cause to believe that such Board member's conduct was unlawful. This Section shall extend to and apply also to the indemnification of the Declarant.

ARTICLE X: ARCHITECTURAL COMMITTEE

Section 1. Charter of Architectural Committee. The Association or Declarant is authorized to appoint an Architectural Committee. The charter of the Architectural Committee is to represent the collective interests of all Owners, and to help Owners wishing to make exterior Improvements. **Each Owner is deemed to covenant and agree to be bound by the terms and conditions of this Declaration, including the standards and process of architectural review and approval. This Article does not apply to the Declarant.**

Section 2. Architectural Control. No exterior Improvement, including, without limitation, Dwelling Unit, building, deck, patio, fence, landscaping, permanent exterior affixed decoration, exterior lighting or heating, cooling and other utility systems shall be altered, erected, or placed on the Property unless and until the building, plot or other plan has been reviewed in advance by the Architectural Committee and same has been approved in writing, and an appropriate building permit has been acquired, if required by law. The review and approval may include, without limitation, topography, finish, ground elevations, landscaping, lighting, drainage, color, material, design, conformity to other residences in the

area, and architectural symmetry. Approval of the architectural design shall apply only to the exterior appearance of said Improvements. It shall not be the intent of these restrictions to control the interior layout or design of said structures.

Section 3. Review of Proposed Improvements. The Architectural Committee shall consider and act upon any and all proposals or plans and specifications submitted for its approval pursuant to this Declaration, and perform such other duties from time to time as may be assigned to it by the Board and/or Declarant, including the inspection of construction in progress. The Architectural Committee may condition its approval of proposals upon the agreement of the Owner to an additional assessment for the cost of maintenance and the payment of an architectural review processing fee. The Architectural Committee may require submission of additional plans or review by a professional architect. The Architectural Committee may issue guidelines setting forth procedures for the submission of plans for approval. The Architectural Committee may require such detail in plans and specifications submitted for its review as it deems proper, including, without limitation, floor plans, site plans, drainage plans, elevations, drawings and description of samples of exterior material and colors. Until receipt by the Architectural Committee of any required plans and specifications the Architectural Committee may postpone review of plans. Decisions of the Architectural Committee and the reasons therefor shall be transmitted by the Architectural Committee, in writing, to the applicant at the address set forth in the application for approval within thirty (30) days after filing all materials required by the Architectural Committee. If the Architectural Committee has not accepted (either conditionally or otherwise) or rejected an Owner's application within this thirty (30) day period, such application shall be deemed approved.

Section 4. Inspection of Approved Improvements. Inspection of work and correction of defects therein shall proceed as follows:

(a) Upon completion of any work for which approved plans are required under this Article, the Owner shall give written notice of completion to the Architectural Committee.

(b) Within sixty (60) days thereafter, the Architectural Committee, or its duly authorized representative, may inspect such Improvement. If the Architectural Committee finds that such work was not done in substantial compliance with the approved plans, it shall notify the Owner and the Board in writing of such noncompliance within such sixty (60) day period, specifying the particulars of noncompliance, and shall require the Owner to remedy the same.

(c) If upon the expiration of thirty (30) days from the date of such notification the Owner shall have failed to remedy such noncompliance, the Board may, at its option, exercise its right to enforce the provisions of this Declaration by proceeding at law or in equity on behalf of the Association and/or correcting such noncompliance itself, and may take such other actions as are appropriate, including the levy of a Limited Assessment against such Owner for reimbursement associated with correcting or removing the same pursuant to this Declaration.

Section 5. Review of Unauthorized Improvements. The Architectural Committee may identify for review, Improvements which were not submitted to the approval process as follows:

(a) The Architectural Committee or its duly authorized representative may inspect such unauthorized Improvement.

(b) If the Architectural Committee finds that the work is in noncompliance with this Declaration and/or its standards or guidelines, it shall notify the Owner and the Board in writing of such noncompliance and its request to remedy such noncompliance.

(c) If the Owner has not remedied such noncompliance within a period of not more than forty-five (45) days from his or her receipt of the noncompliance notice, then the Board may, at its option, exercise its right to enforce the provisions of this Declaration by a proceeding at law or in equity on behalf of the Association and/or correcting such noncompliance itself, and may take such other actions as are appropriate, including the levy of a Limited Assessment against such Owner for reimbursement of the costs associated with correcting or removing the same pursuant to this Declaration.

ARTICLE XI: GENERAL PROVISIONS

Section 1. Enforcement. The Association, Declarant and/or any Owner, shall have the right to enforce, by any proceeding at law or in equity, all terms and Restrictions now or hereafter imposed by the provisions of this Declaration. Failure by the Association, Declarant or by any Owner to enforce any term or Restriction herein contained shall in no event be deemed a waiver of the right to do so thereafter.

Section 2. Severability. Invalidation of any one of these terms or Restrictions by judgment or court order shall in no way affect any other provisions which shall remain in full force and effect.

Section 3. Term and Amendment. The terms and Restrictions of this Declaration shall run with and bind the land, for a term of twenty (20) years from the date this Declaration is recorded, after which time they shall be automatically extended for successive periods of ten (10) years. This Declaration may be amended by an instrument signed by Declarant (assuming Declarant owns one or more Lots) and the consent of two-thirds (2/3) of the Class A Members. Amendments shall be in the form of supplemental declarations, and must be recorded in the records of Ada County, Idaho.

Section 4. Annexation. **As described in Article I, Section 1, additional real property consisting of the remainder of the Ledgestone Subdivision may be annexed into the Ledgestone Subdivision. These future annexations will be accomplished by Declarant at its sole and absolute discretion without any Association, Owner or Class A Member consent.** In addition, additional residential property not currently anticipated to be a part of the Ledgestone Subdivision may be annexed into the Property by Declarant or with the consent of two-thirds (2/3) of the Class A Members. Annexations shall be accomplished by supplemental declarations to this Declaration recorded in the records of Ada County, Idaho.

Section 5. Duration and Applicability to Successors. The terms and Restrictions set forth in this Declaration shall run with the land and shall inure to the benefit of and be binding upon the Declarant, the Association and all Lot Owners and their successors in interest. **Declarant shall have the absolute right, at their sole and absolute discretion, to assign any and all of Declarant's rights, duties and/or obligations under this Declaration to any third party. Any such assignment shall be in writing signed by both the assignor and assignee.**

Section 6. Attorneys Fees. In the event it shall become necessary for the Association, Declarant or any Owner to retain legal counsel to enforce any term or Restriction contained within this Declaration, the prevailing party to any court proceeding shall be entitled to recover their reasonable attorneys' fees and costs of suit, including any bankruptcy, appeal or arbitration proceeding.

Section 7. Governing Law. This Declaration shall be construed and interpreted in accordance with the laws of the State of Idaho.

IN WITNESS WHEREOF, the undersigned, being the Declarant herein, has hereunto set its hand this _____ day of _____, 20____.

Declarant:

_____
John A. Laude, Sr

Heartland Homes, LLC, Inc.,
an Idaho corporation

By: _____
John A. Laude, Sr., President

STATE OF IDAHO)
) ss.
County of Ada)

On this _____ day of _____, 20_____, before me, the undersigned, a Notary Public in and for said State, personally appeared John A. Laude, Sr., known or identified to me to be the person who executed the foregoing instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

Notary Public for Idaho
Residing at: _____
My commission expires: _____

STATE OF IDAHO)
) ss.
County of Ada)

On this _____ day of _____, 20_____, before me, the undersigned, a Notary Public in and for said State, personally appeared John A. Laude, Sr.,, known or identified to me to be the President of Corey Barton Homes, Inc., the person who executed the instrument on behalf of said corporation, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

_____
Notary Public for Idaho
Residing at: _____
My commission expires: _____

EXHIBIT A
LEGAL DESCRIPTION OF THE PROPERTY

Lots 1 through 4, Block 1; Lots 1 through 12, Block 2; Lot 8, Block 3; Lots 7 through 10, Block 4, Lots 7 and 8, Block 5; Lots 7 and 8, Block 6; and Lot 19, Blocks 5 of the Ledgestone Subdivision No. 1, according to the official plat thereof, filed in Book ____ of Plats at Pages _____ through _____, Records of Ada County, Idaho.

EXHIBIT B
DESCRIPTION OF LEDGESTONE SUBDIVISION

EXHIBIT C
LEGAL DESCRIPTION OF COMMON LOTS

Phase one of the Ledgestone Subdivision does not contain any Common Lots. The remainder of the Ledgestone Subdivision contains Common Lots and will be shown and identified in subsequent plats, amendments and supplemental declarations to this Declaration.

EXHIBIT D

LEDGESTONE SUBDIVISION NO. 1 FINAL PLAT

TRAFFIC IMPACT STUDY
FOR
LEDGESTONE SUBDIVISION
ADA COUNTY, ID

Prepared for:
TRILOGY DEVELOPMENT, INC.
9839 W. Cable Car Street, Ste. 101
Boise, ID 83709

Prepared By:

WHPacific

2141 W. Airport Way, Ste. 104
Boise, ID 83705
(208) 342-5400

October 10, 2018

EXECUTIVE SUMMARY

This study was prepared in accordance with the ADA County Highway District's (ACHD's) requirements for a Traffic Impact Study listed in Section 7106 of the current *ACHD Policy Manual.* It evaluates the traffic impacts associated with the TJ Johnson property in Kuna, ID, also known as "Ledgestone Subdivision." The study area, scope and specific analysis parameters and requirements are the result of an Area of Influence Review performed by the Community Planning Association of Southwest Idaho (COMPASS) and a subsequent Initial Meeting with ACHD. The study's principal findings and recommendations are summarized below.

Proposed Development

1.0 Ledgestone Subdivision is a proposed development consisting of 254 single-family dwelling units on a 60.85 acre parcel located south of Hubbard Road, between Meridian Road (SH 69) and Locust Grove Road located in Ada County, Idaho.

2.0 The development is planned to be constructed over a period of approximately seven years, or to the period 2025/2026. Do to the short duration of buildout, an interim evaluation was not required by ACHD.

3.0 The proposed development is expected to generate 2,398 daily trips, 188 AM peak hour trips and 251 PM peak hour trips.

4.0 The primary roadway network serving this proposed subdivision includes the following roadway segments and intersections:

Intersections:

- Hubbard Road and SH69 (Meridian Road)
- Hubbard Road and Locust Grove Road
- Columbia Road and Locust Grove Road
- All site access points

Segments:

- Hubbard Road, between SH69 and Locust Grove Road
- Locust Grove Road, between Hubbard Road and Columbia Road
- All internal and new collectors

Primary access to the site will be provided via S. Stroebel Road, constructed along the ½ mile alignment, between Meridian Road and Locust Grove Road. Additional access will be provided south of the Mason Creek Ditch at Locust Grove Road and E. Initially, a temporary access will be constructed to the subdivision approximately 500 feet east of S. Stroebel Road. This access will ultimately be closed at the completion of development.

Proposed Mitigation for Existing Traffic

5.0 For the existing traffic conditions analyzed with the existing roadway lane configuration, all study area roadways meet ACHD's minimum operational thresholds. No roadway improvements are needed to mitigate existing traffic.

6.0 For the existing traffic conditions analyzed with the existing intersection control and lane configuration, all study area intersections meet ACHD's minimum operational thresholds. No intersection improvements are needed to mitigate the existing traffic.

Proposed Mitigation for 2025 Background Traffic

7.0 For the 2025 background traffic conditions analyzed with the existing roadway lane configuration, all study area roadways meet ACHD's minimum operational thresholds. No roadway improvements are needed to mitigate 2025 background traffic.

8.0 For the 2025 background traffic conditions analyzed with the existing intersection control and lane configuration, one of the three study area intersections do not meet ACHD's minimum operational thresholds. At the intersection of Columbia Road and Locust Grove Road, Installation of a traffic signal is recommended to mitigate 2025 background traffic conditions. A single-lane roundabout is deemed as another viable alternative to the recommended traffic signal, however the roundabout alternative was not fully analyzed under this review. While this improvement has been identified to accommodate 2025 background traffic, it is not currently included in ACHD's Capital Improvements Plan (CIP).

Proposed Mitigation for 2025 Site Plus Background Traffic

9.0 For the 2025 site plus background traffic conditions analyzed with the existing roadway lane configuration, all study area roadways meet ACHD's minimum operational thresholds. No roadway improvements are needed to mitigate 2025 site plus background traffic.

10.0 For the 2025 site plus background traffic conditions analyzed with the existing (and 2025 background improvements) intersection control and lane configuration, all study area intersections meet ACHD's minimum operation thresholds. Therefore, no intersection improvements are needed to mitigate 2025 site plus background traffic.

PROPOSED DEVELOPMENT

Project Description

The TJ Johnson property near Kuna, ID is a proposed development consisting of 254 single-family dwelling units on a 60.85 acre parcel located south of Hubbard Road, between Meridian Road (SH 69) and Locust Grove Road. The development is formally known as the "Ledgestone Subdivision." Primary access to the site will be provided via S. Stroebel Road, constructed along the ½ mile alignment, between Meridian Road and Locust Grove Road. Additional access will be provided south of the Mason Creek Ditch on Locust Grove Road. Initially, a temporary access will be constructed to the subdivision approximately 500 feet east of S. Stroebel Road. This access will ultimately be closed at the completion of development. The existing site is currently undeveloped farm land and is zoned Rural Residential (RR). The project proposes to rezone to Medium Density Residential (R8). The proposed site plan is illustrated in Figure 1.

Buildout of the Ledgestone Subdivision is expected to occur over an approximate seven year period, or approximately 2025/2026. Due to the short duration of buildout it was confirmed in the initial meeting with Ada County Highway District (ACHD) that an interim evaluation period would not be needed.

STUDY APPROACH

This Traffic Impact Study is required by ACHD as part of the development approval process and follows the requirements for Traffic Impact Studies listed in Section 7106 of the current ACHD Policy Manual.

Initial Meeting

Prior to the initial meeting, ACHD requested that Community Planning Association of Southwest Idaho (COMPASS) perform an area of influence model run. The proposed development falls within TAZ 1181. The current COMPASS model assumes 6 households (HH) and 15 jobs within this TAZ. Under the proposed development of 254 single family homes, the total HH equals 260. Using the 2025 forecast year, COMPASS ran the model with and without the proposed development to confirm likely trip impacts. The review concluded that the following intersections and roadway segments be include in the TIS evaluation:

Intersections:

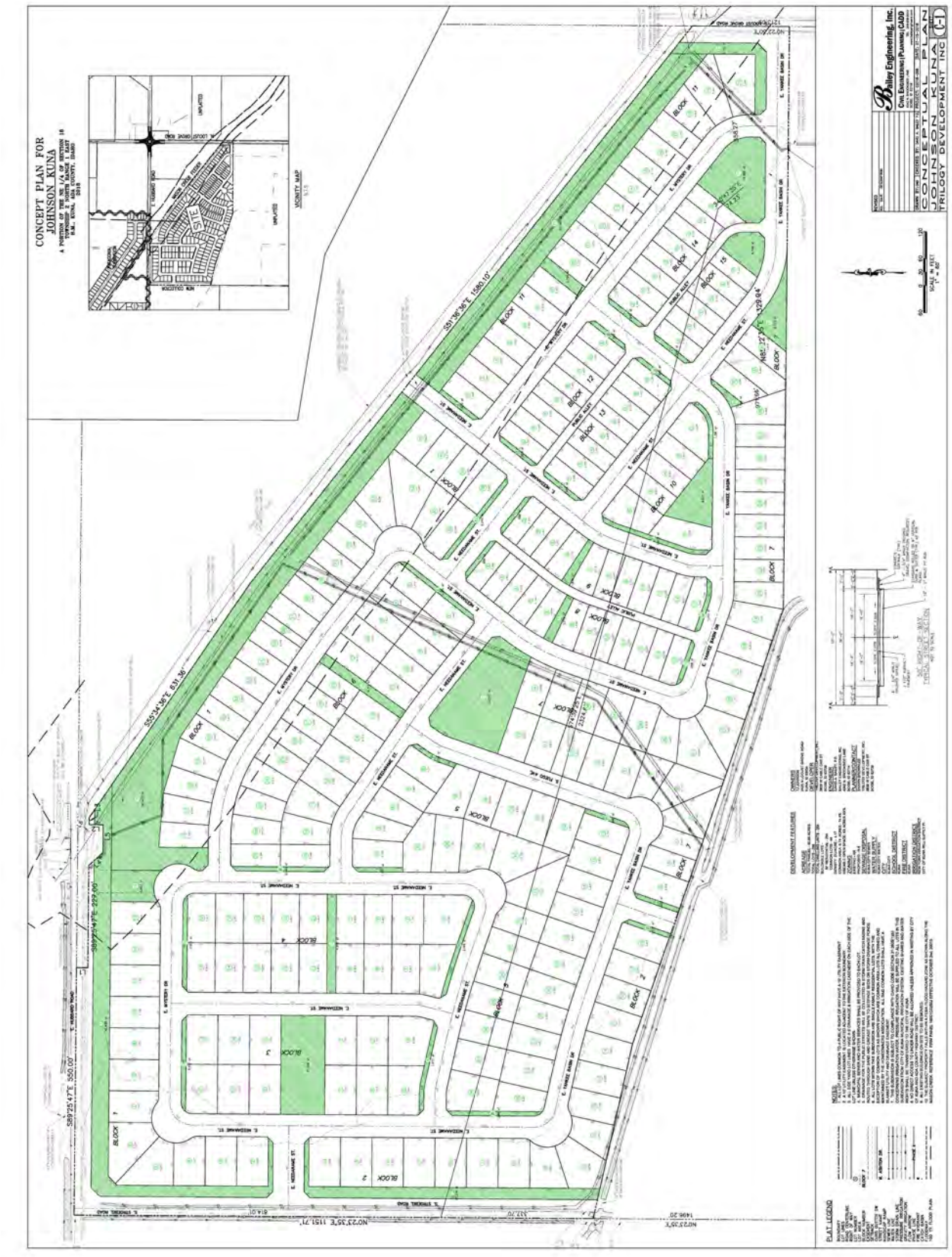
- Hubbard Road and SH69 (Meridian Road)
- Hubbard Road and Locust Grove Road
- Columbia Road and Locust Grove Road
- All site access points

Segments:

- Hubbard Road, between SH69 and Locust Grove Road
- Locust Grove Road, between Hubbard Road and Columbia Road
- All internal and new collectors

This area of influence analysis was provide to ACHD and Idaho Transportation Department (ITD) and is included in the Appendix. Also, prior to the Initial Meeting ACHD approved of collecting traffic counts prior to the start of Kuna schools due to the remote location of the proposed development.

Figure 1


CONCEPT PLAN FOR
JOHNSON KUNA
VICINITY MAP
SITE
Bailey Engineering, Inc.
JOHNSON KUNA
TRILOGY DEVELOPMENT INC

The initial meeting with ACHD was held on August 7, 2018 and was attended by ACHD (Mindy Wallace and Aimee Loudenslager) and WHPacific (Jane Suggs and Bob Beckman). The developer, Trilogy, and ITD were not in attendance at this meeting but were consulted afterward regarding the items discussed. ITD has requested to be involved in review of the TIS due to the potential impacts related to SH69. Other items discussed included:

- ACHD indicated that Capital Projects staff were involved in development of an interim traffic signal at SH69 and Hubbard Road. Subsequent to the meeting, WHPacific contacted both ACHD and ITD regarding this recently installed signal which has been identified as an interim project at this location.
- Other development is planned in the vicinity between Hubbard Road and Columbia Road. According to ACHD, this entitled development is already included in the COMPASS demographic data.
- Due to the short development period, a multiple phase review is not needed. The TIS will only need to assess existing conditions and full buildout (expected in 2025/2026)
- A $500 fee is included at the time of the TIS submittal. No DRAFT review is needed.
- For trip generation computations use *ITE Trip Generation Manual, 10th Edition.*
- ACHD encouraged WHPacific to ask questions if they came up during development of the traffic study.
- WHPacific should consult with ITD to determine if items above and beyond ACHD Policy will need to be reviewed for ITD purposes. Subsequent contact with ITD indicated that additional review was not needed for this project.

Study Area

In accordance with the area of influence review performed by COMPASS the following intersections and roadway segments will be reviewed:

Intersections:

- Hubbard Road and SH69 (Meridian Road)
- Hubbard Road and Locust Grove Road
- Columbia Road and Locust Grove Road
- All site access points

Segments:

- Hubbard Road, between SH69 and Locust Grove Road
- Locust Grove Road, between Hubbard Road and Columbia Road
- All internal and new collectors

Study Period

The study periods as identified in the Initial Meeting will include:

- Existing (2018)
- 2025/2026 (Buildout)

The following time intervals will be evaluated:

- Weekday AM Peak Hour
- Weekday PM Peak Hour

As this development is comprised entirely of single-family homes, a weekend peak hour review was not deemed necessary.

ANALYSIS OF EXISTING (2018) CONDITIONS

Roadway Network

Table 1 summarizes the characteristics of the roadway network within the study area.

Table 1 – Study Area Roadways

Roadway	Functional Classification	Posted Speed (mph)	Lanes (total)
SH69	Principal Arterial	55	5 (includes TWLTL)
Columbia Road	Minor Arterial	50	2
Hubbard Road	Minor Arterial	45	2
Locust Grove Road	Minor Arterial	50	2

Functional Classification noted in accordance with 2040 Functional Classification Map, COMPASS
TWLTL = Two-Way-Left Turn Lane

Two of the three intersections within the study area are stop-controlled (unsignalized). A four-way stop exists at Columbia Road and Locust Grove Road and a two-way stop in the north and south directions is present at Hubbard Road and Locust Grove Road. At SH69 and Hubbard Road a newly installed traffic signal is present. Figure 2 illustrates existing lane configuration and traffic control conditions.

Transit Service

Due to the rural nature of the study area no existing transit routes in the vicinity exist. The closest available transit routes are located along Overland Road to the north, with stops in the vicinity of Eagle Road and SH69.

Bicycle and Pedestrian Facilities

No bicycle or pedestrian facilities exist within the study area.

Traffic Volumes

Existing 24-hour counts and intersection turn movement counts were collected on Tuesday, August 7, 2018. 24-hour counts were recorded 1) on Hubbard Road, between SH69 and Locust Grove Road and 2) on Locust Grove Road, between Hubbard Road and Columbia Road. Intersection turn movement counts were recorded between 7:00 AM – 9:00 AM and 4:00 PM to 6:00 PM in order to isolate the AM and PM peak hour conditions. Intersection count locations included 1) Hubbard Road and SH69, 2) Hubbard Road and Locust Grove Road and 3) Locust Grove Road and Columbia Road. Vehicle classification, pedestrian, and bicycle movements were not recorded for purposes of this review. Figure 3 illustrates resultant 24-hour and intersection turn movement counts. Relative count summaries are also included in the Appendix.

Level-of-Service Roadway Segments

ACHD has developed level-of-service (LOS) thresholds for roadway segments based on directional peak hour volumes for various roadway functional classifications, number of lanes and left-turn treatments. Based on the current *ACHD Policy Manual*, the minimum acceptable LOS for a roadway segment is LOS E for principal arterials and minor arterials, and LOS D for collectors. Table 2 summarizes ACHD's LOS thresholds for roadway segments.

Figure 2

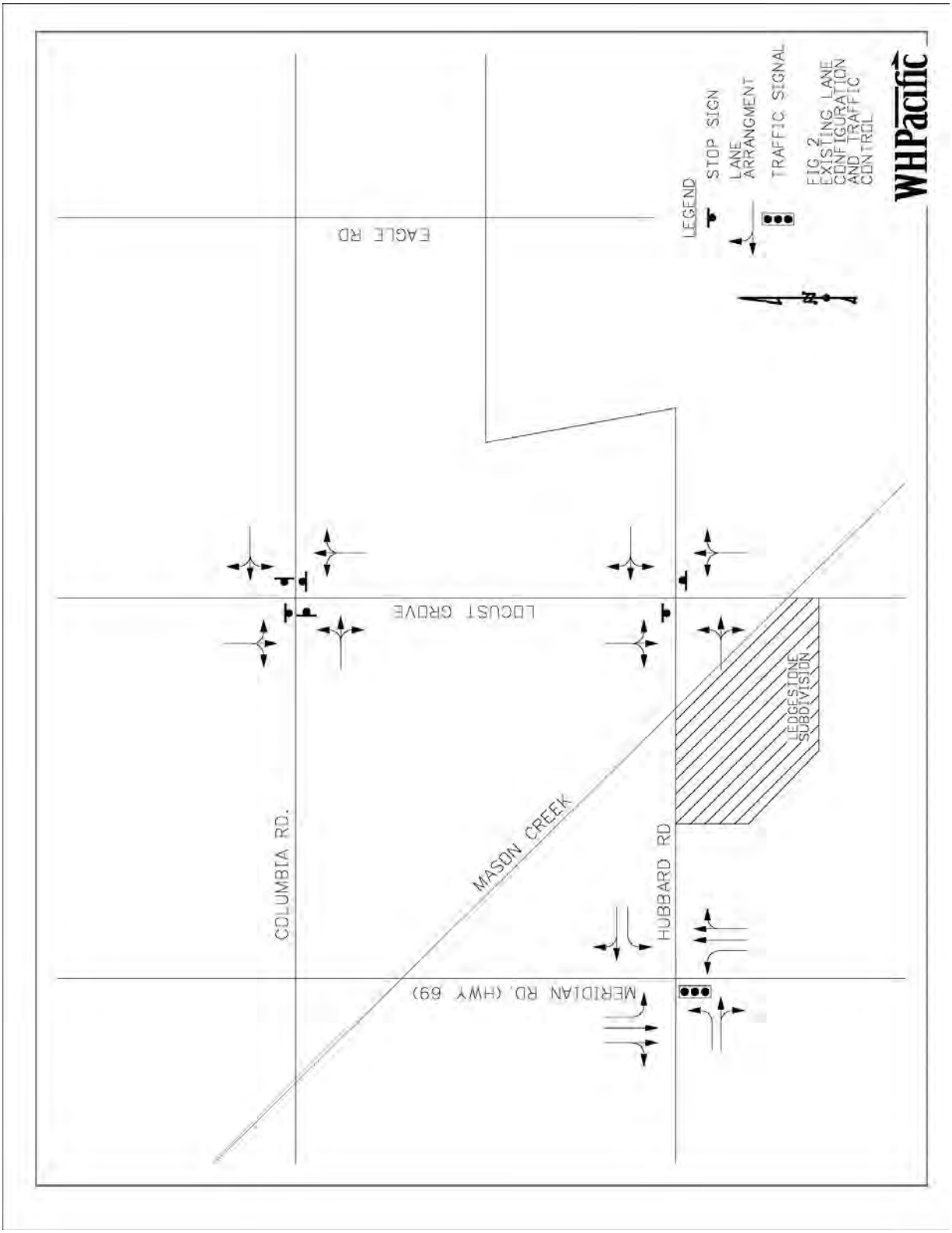

WHPacific
FIG 2
EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL
LEGEND
STOP SIGN
LANE ARRANGMENT
TRAFFIC SIGNAL
EAGLE RD
LOCUST GROVE
LEDGESTONE SUBDIVISION
MASON CREEK
COLUMBIA RD.
HUBBARD RD
MERIDIAN RD. (HWY 69)

Figure 3

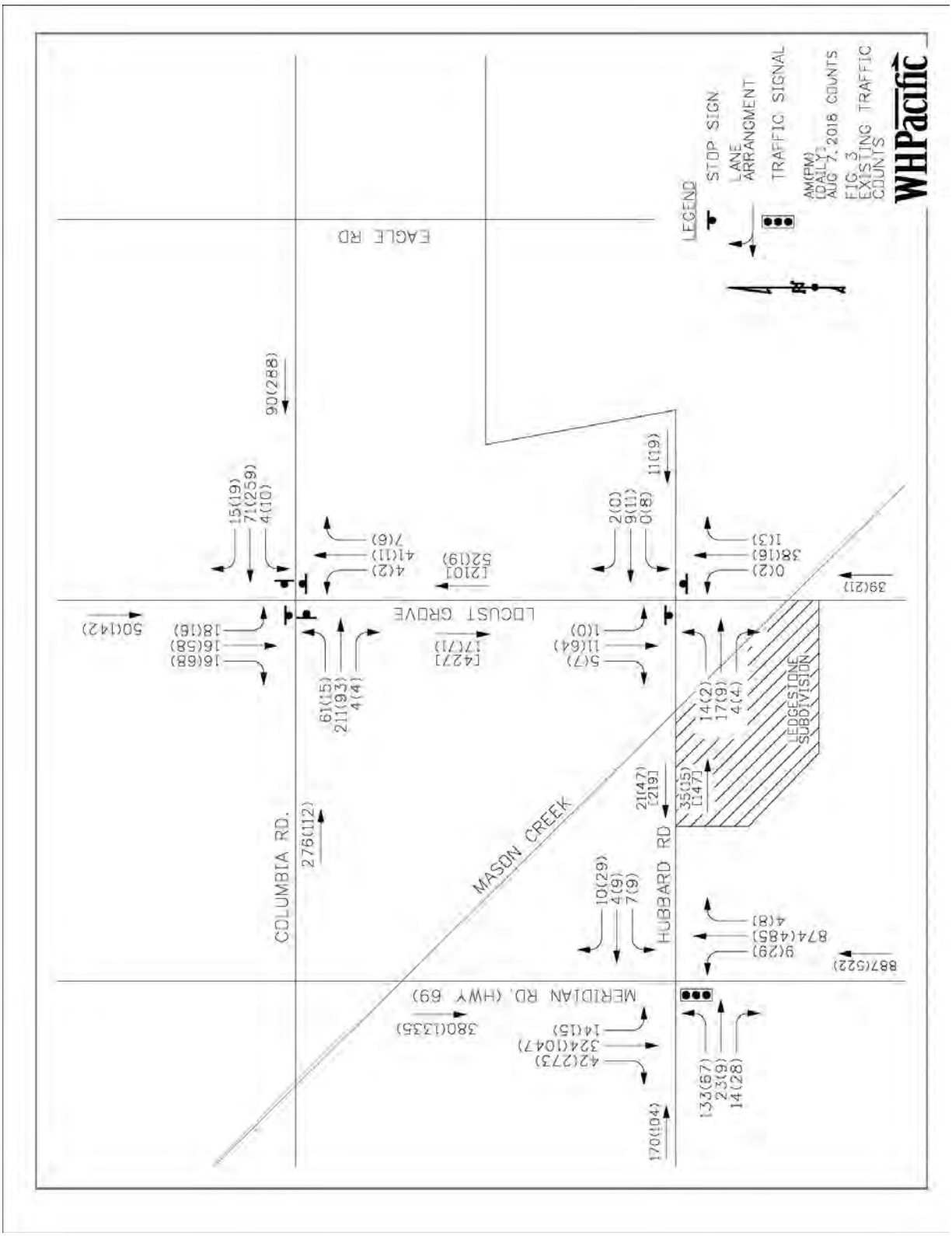

WHPacific
FIG. 3
EXISTING TRAFFIC
COUNTS
AM(PM)
DAILY
AUG 7, 2018 COUNTS
TRAFFIC SIGNAL
LANE
ARRANGMENT
STOP SIGN
LEGEND
EAGLE RD
LOCUST GROVE
COLUMBIA RD.
HUBBARD RD
MERIDIAN RD. (HWY 69)
MASON CREEK
LEDGESTONE
SUBDIVISION
90(288)
276(112)
887(522)
874(485)
9(29)
4(8)
10(29)
4(9)
7(9)
21(47)
[219]
35(35)
[147]
14(2)
17(9)
4(4)
11(19)
2(0)
9(11)
0(8)
38(16)
1(3)
0(2)
39(21)
15(19)
71(259)
4(10)
7(6)
41(11)
4(2)
52(19)
[210]
50(142)
18(18)
16(58)
16(68)
61(15)
211(93)
4(4)
17(71)
[427]
5(7)
11(64)
1(0)
42(273)
324(1047)
14(15)
380(1335)
133(67)
23(9)
14(28)
170(104)

Table 2 – ACHD LOS Thresholds for Roadway Segments

Functional Classification	Lanes	LOS D	LOS E
Principal Arterials			
No Left-Turn Lanes			
	1	600	690
Continuous Center Left-Turn Lane			
	1	770	880
	2	1680	1780
	3	2560	2720
Median-Control, Channelized Left-Turn Lanes @ Major Intersections			
	1	850	920
	2	1860	1960
	3	2800	3000
Minor Arterials			
No Left-Turn Lane			
	1	540	575
Unrestricted Median, Continuous Left-Turn Lane			
	1	675	720
	2	1395	1540
	3	2155	2370
Median-Control, Channelized Left-Turn Lanes @ Major Intersections			
	1	710	770
	2	1465	1670
	3	2270	2530
Collectors			
No Left-Turn Lanes			
	1	425	525
Unrestricted Median, Continuous Left-Turn Lane			
	1	530	660
	2	1080	1250

Table 3 summarizes the existing LOS for the roadway segments in the study area. As noted, all roadway segments currently operate at LOS D or better under the current lane configuration and traffic volumes. No roadway improvements are needed to mitigate existing traffic conditions.

Table 3 – Roadway Segment LOS – Existing (2018) Traffic

Roadway Segment	Functional Class	No. of Thru Lanes	Left-Turn Treatment	Threshold Volume		AM Peak Hour Major Direction		PM Peak Hour Major Direction	
				LOS D	LOS E	Vol (vph)	LOS	Vol (vph)	LOS
Hubbard Rd, SH69 to Locust Grove Rd	Minor Arterial	1	No LT Lane	550	575	35	< D	47	< D
Locust Grove Rd, Hubbard Rd to Columbia Rd	Minor Arterial	1	No LT Lane	540	575	52	< D	71	< D

Level-of-Service Intersections

Intersection LOS was evaluated using *Highway Capacity Software (HCS7)*. In accordance with the *ACHD Policy Manual*, the maximum overall v/c ratio is 0.90 for signalized intersection. For unsignalized intersections, the intersection v/c ratio is undefined. The maximum lane group v/c ratio for signalized and unsignalized intersections is 1.0. Each of the intersections within the study area was evaluated under existing traffic control, lane configuration and peak hour volumes. *HCS7* Reports are included in the Appendix and results are summarized in Table 4.

Table 4 – Intersection Traffic Operations – Existing (2018) Traffic

Intersection	Traffic Control Lane Group	AM LOS/Delay/v/c	PM LOS/Delay/v/c
Hubbard Rd/ SH69	Traffic Signal	B/13.8	B/12.9
	Eastbound	D/46.9/0.82	D/48.3/0.78
	Westbound	D/48.4/0.38	D/48.2/0.47
	Northbound	A/9.2/0.41	A/7.9/0.54
	Southbound	A/8.0/0.43	B/10.9/0.61
Hubbard Rd/ Locust Grove	TWSC	NR	NR
	Eastbound	NR/3.0/0.01	NR/0.9/0.00
	Westbound	NR/0.0/0.00	NR/3.1/0.01
	Northbound	A/9.6/0.05	A/9.3/0.03
	Southbound	A/9.2/0.02	A/9.6/0.09
Columbia Rd/ Locust Grove	AWSC	A/9.3/NR	A/9.7/NR
	Eastbound	A/10.0/NR	A/8.7/NR
	Westbound	A/8.1/NR	B/10.5/NR
	Northbound	A/8.3/NR	A/8.2/NR
	Southbound	A/8.2/NR	A/9.0/NR

NR = not reported
TWSC = Two-way stop control
AWSC = All-way stop control

All study area intersections currently operate at acceptable, LOS D or better, conditions. Reported v/c ratios are also under 1.0. No intersection improvements are needed to mitigate existing traffic conditions.

ANALYSIS OF 2025 BACKGROUND TRAFFIC CONDITIONS

Roadway Network

Both the ACHD *Five-Year Work Plan (FYWP)* and the *ACHD Capital Improvements Plan (CIP)* were reviewed for purposes of the study. The currently adopted *FYWP* identifies projects programmed from 2018 to 2022 while the *CIP* is a long-range (20 years) transportation plan identifying existing transportation facilities, existing deficiencies, and future improvement needs. The only specific project noted in the *FYWP* is an interim traffic signal at the intersection of SH69 and Hubbard Road. This project has recently been completed and is therefore considered as part of the existing roadway and traffic control network. A long-term project is also planned at this intersection to modify this signal and reconstruct/widen approaches, by adding an exclusive right turn lane in the southbound and westbound directions. This work is planned during the period 2031 – 2035 and will therefore not be included in the assumed 2025 lane configuration, unless needed to achieve acceptable operations.

Transit Service

Valley Regional Transit (VRT) has recently adopted (April 2018) *ValleyConnect 2.0* which is a plan for long-range transit service and related capital projects. Scenarios considered in this plan include linking Kuna to Meridian via SH69. As of now the plan is dependent on securing various funding sources and actual projects or programmed improvements are not defined. As such, no further improvements beyond the existing transit network are assumed for the project study area.

Bicycle and Pedestrian Facilities

ACHD's current *FYWP* and *CIP* do not have bicycle or pedestrian improvement projects designated for the study roadways.

Traffic Volumes

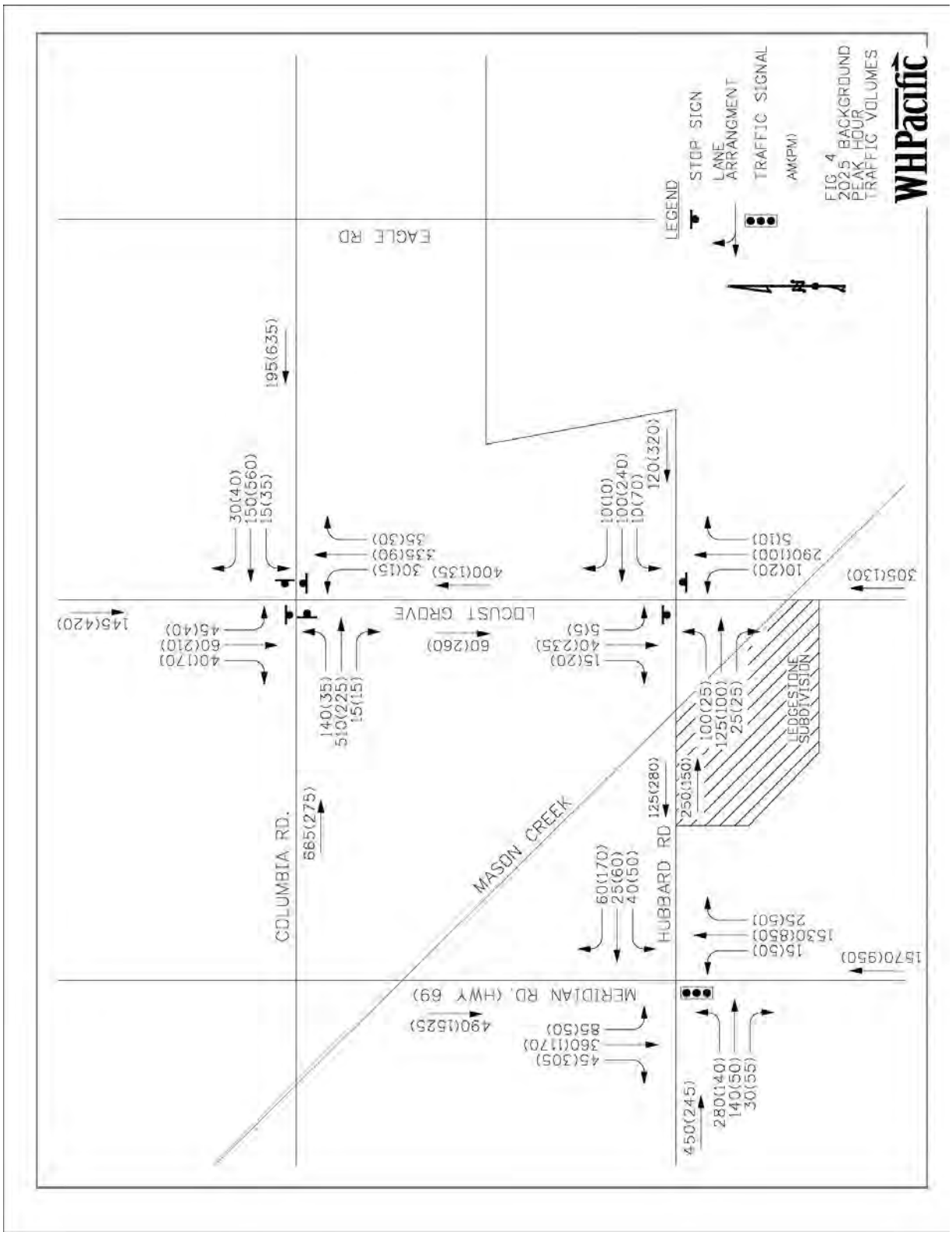
The COMPASS travel demand model was used to estimate 2025 background traffic volumes. As no roadway network improvements or significant demographic changes are planned in this vicinity for the foreseeable future, the existing turn movement distribution is considered a reliable estimate for the distribution of future 2025 peak hour traffic. The 2025 peak hour forecast provided by COMPASS is considered a representation of PM peak hour conditions and a separate AM peak hour model has not been developed. In order to forecast future PM peak hour conditions the COMPASS directional link volumes were distributed in accordance with the associated existing turn movement percentages. Subsequent to this initial computation further manual balancing between nodes was required. This process is consistent with the *Furness Method* where existing intersection turning movement percentages and forecasted peak hour approach volumes are used to alternatively balance the entering and departing traffic until results converge, resulting in balanced forecast turn movement volumes at each intersection.

As an AM forecast is unavailable, further computation were required to generate 2025 background AM peak hour conditions. This was accomplished by computing the growth ratios for each intersection movement (2025 background PM peak hour conditions as compared to existing PM peak hour conditions). These same growth ratios were then applied to the existing AM peak hour traffic volumes in order to generate the 2025 background AM peak hour forecast conditions. Figure 4 illustrates 2025 AM and PM background (without project) peak hour conditions.

Off-Site Development

As indicated previously, development is planned in the vicinity between Hubbard Road and Columbia Road. This entitled development is included in the COMPASS demographic data for 2025 background conditions.

Figure 4


WHPacific
FIG 4
2025 BACKGROUND
PEAK HOUR
TRAFFIC VOLUMES
AM(PM)
TRAFFIC SIGNAL
LANE ARRANGMENT
STOP SIGN
LEGEND
EAGLE RD
LOCUST GROVE
COLUMBIA RD.
HUBBARD RD
MERIDIAN RD. (HWY 69)
MASON CREEK
LEDGESTONE SUBDIVISION
195(635)
120(320)
10(10)
100(240)
10(70)
30(40)
150(560)
15(35)
400(135) 30(15)
335(90)
35(30)
10(20)
290(100)
5(10)
305(130)
145(420)
45(40)
60(210)
40(170)
140(35)
510(225)
15(15)
60(260)
5(5)
40(235)
15(20)
100(25)
125(100)
25(25)
250(150)
125(280)
665(275)
60(170)
25(60)
40(50)
15(50)
1530(850)
25(50)
1570(950)
490(1525)
85(50)
360(1170)
45(305)
450(245)
280(140)
140(50)
30(55)

Level-of-Service Roadway Segments

Table 5 summarizes the 2025 background LOS for the roadway segments in the study area. As noted, all roadway segments are projected to operate at LOS D or better under the current lane configuration and 2025 background traffic volumes. No roadway improvements are needed to mitigate 2025 background traffic conditions.

Table 5 – Roadway Segment LOS – 2025 Background Traffic

Roadway Segment	Functional Class	No. of Thru Lanes	Left-Turn Treatment	Threshold Volume		AM Peak Hour Major Direction		PM Peak Hour Major Direction	
				LOS D	LOS E	Vol (vph)	LOS	Vol (vph)	LOS
Hubbard Rd, SH69 to Locust Grove Rd	Minor Arterial	1	No LT Lane	550	575	250	< D	280	< D
Locust Grove Rd, Hubbard Rd to Columbia Rd	Minor Arterial	1	No LT Lane	540	575	400	< D	260	< D

Level-of-Service Intersections

Each of the intersections within the study area was evaluated under existing traffic control, lane configuration and 2025 background peak hour volumes. *HCS7* Reports are included in the Appendix and results are summarized in Table 6.

Table 6 – Intersection Traffic Operations – 2025 Background Traffic

Intersection	Traffic Control Lane Group	AM LOS/Delay/v/c	PM LOS/Delay/v/c
Hubbard Rd/ SH69	Traffic Signal	C/45.6	C/34.1
	Eastbound	D/38.9/0.89	D/50.5/0.85
	Westbound	D/48.2/0.71	E/56.4/0.89
	Northbound	D/54.7/1.00	C/22.0/0.78
	Southbound	C/22.0/0.79	C/34.9/0.87
Hubbard Rd/ Locust Grove	TWSC	NR	NR
	Eastbound	NR/3.5/0.08	NR/1.5/0.02
	Westbound	NR/0.7/0.01	NR/2.1/0.05
	Northbound	E/40.9/0.81	D/28.2/0.49
	Southbound	C/16.2/0.17	E/39.7/0.77
Columbia Rd/ Locust Grove	AWSC	F/116.6/NR	F/118.1/NR
	Eastbound	F/214.5/NR	C/24.5/NR
	Westbound	C/16.6/NR	F/225.2/NR
	Northbound	E/39.4/NR	C/16.0/NR

Intersection	Traffic Control Lane Group	AM LOS/Delay/v/c	PM LOS/Delay/v/c
	Southbound	B/15.0/NR	F/50.2/NR
Columbia Rd/ Locust Grove (with traffic signal)	Traffic Signal	C/24.6	B/14.7
	Eastbound	B/12.9/0.53	B/11.9/0.32
	Westbound	A/7.0/0.17	B/11.5/0.64
	Northbound	D/48.9/0.87	B/17.2/0.25
	Southbound	D/35.5/0.43	C/20.6/0.83

NR = not reported
TWSC = Two-way stop control
AWSC = All-way stop control

At Hubbard Road and SH69, the heavy through volume in the northbound direction under AM peak hour conditions is at capacity. Overall, the intersection operates at LOS D in both the AM and PM peak hour conditions and other critical movement v/c ratios are less than 1.0. Under this scenario additional capacity improvements have not specifically been identified, however continued monitoring of this issue is recommended. As SH69 is a state highway, further improvements at this location, beyond that anticipated by the ACHD *CIP,* would be subject to ITD approval.

The Hubbard and Locust Grove intersection experiences poor LOS for the northbound and southbound stop-controlled movements in the AM and PM peak hours respectively, however the associated v/c ratios are considered acceptable (less than 0.90). Therefore, no further improvements are recommended at this location.

The four-way stop at Columbia Road and Locust Grove is expected to operate poorly under both AM and PM peak hour conditions. ACHD Policy requires that intersections operating at LOS D or worse be evaluated for signalized control in accordance with the *Manual on Uniform Traffic Control Devices (MUTCD)* procedures. In accordance with these procedures, hourly traffic conditions were estimated based on projected 2025 volumes and the hourly distribution of daily traffic volumes, as recorded by the existing 24-hour counts. Under this scenario, it appears that this intersection would meet warrants for a traffic signal. Evaluation of this condition with a traffic signal yields very favorable traffic operations. As such, the subsequent intersection capacity analysis at this location will be completed assuming signalized control. The detailed signal warrant analysis is provided in the Appendix.

ANALYSIS OF 2025 TOTAL (SITE PLUS BACKGROUND) TRAFFIC CONDITIONS

Trip Generation

The number of trips generated by the proposed development was estimated using rates provide in the *ITE Trip Generation Manual, 10th Edition.* Table 6 provides a summary of these results for Daily, AM Peak Hour and PM Peak hour conditions.

Table 7 – 2025 Trip Generation Summary

Land Use Category	ITE Code	Size	Period	Trip Rate	Total Trips	Enter		Exit	
Single Family Detached Housing	210	254 DU	Weekday (vpd)	9.44	2398	50%	1199	50%	1199
			AM Peak Hr(vph)	0.74	188	25%	47	75%	141
			PM Peak Hr(vph)	0.99	251	63%	158	37%	93

Trip Distribution and Assignment

Site traffic was distributed in consideration of existing travel patterns, site layout and the generalized development within this area. These preliminary assumptions were also reviewed with ACHD for concurrence and are summarized as follows:

- SH69 (North) 20%
- SH69 (South) 5%
- Locust Grove Rd (North) 40%
- Locust Grove Rd (South) 5%
- Hubbard Rd (East) to Eagle Rd 30%

Generally, this distributions assumes the 90% of traffic origins and destinations are to the north and 10% are to the south. Figure 5 illustrates the resultant site traffic distribution. The projected percent increase at each intersection (as compared to 2025 background volumes) is noted as follows:

- Hubbard Road and SH69, AM = +1.8%, PM = +2.1%
- Hubbard Road and Locust Grove Road, AM = +18.0%, PM = +20.5%
- Columbia Road and Locust Grove Road, AM = +5.6%, PM = + 6.8%

Site Plus Background Traffic

Site traffic was added to the 2025 background traffic in order to produce the 2025 total traffic conditions with the proposed development. Fig 6 illustrates the resultant traffic volumes for AM and PM peak hour conditions.

Level-of-Service Roadway Segments

Table 8 summarizes the 2025 site plus background (total) LOS for the roadway segments in the study area. As noted, all roadway segments are projected to operate at LOS D or better under the current lane configuration and 2025 site plus background volumes. No roadway improvements are needed to mitigate these conditions.

Table 8 – Roadway Segment LOS – 2025 Site Plus Background Traffic

Roadway Segment	Functional Class	No. of Thru Lanes	Left-Turn Treatment	Threshold Volume		AM Peak Hour Major Direction		PM Peak Hour Major Direction	
				LOS D	LOS E	Vol (vph)	LOS	Vol (vph)	LOS
Hubbard Rd, SH69 to Locust Grove Rd	Minor Arterial	1	No LT Lane	550	575	262	< D	304	< D
Locust Grove Rd, Hubbard Rd to Columbia Rd	Minor Arterial	1	No LT Lane	540	575	457	< D	323	< D

Figure 5

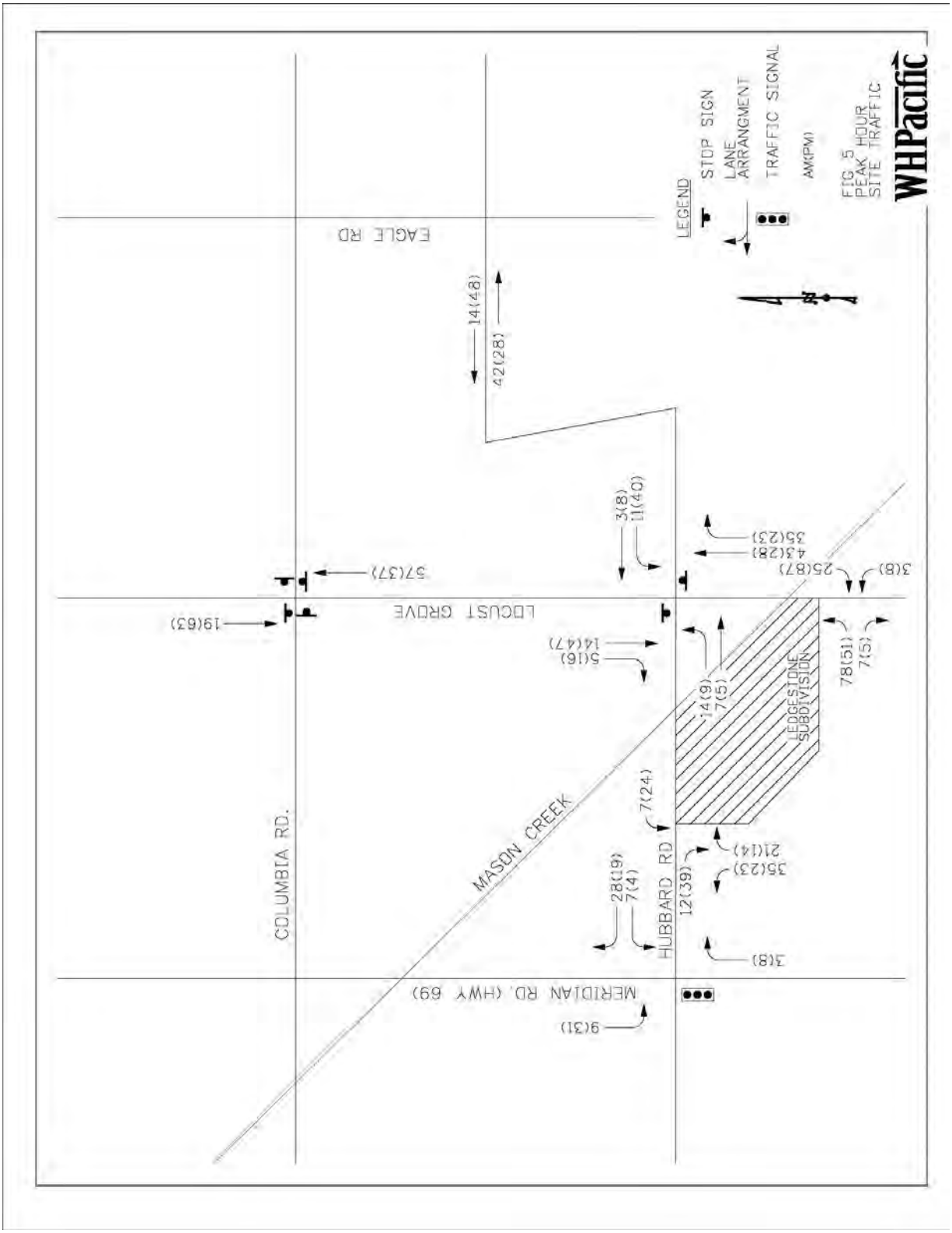
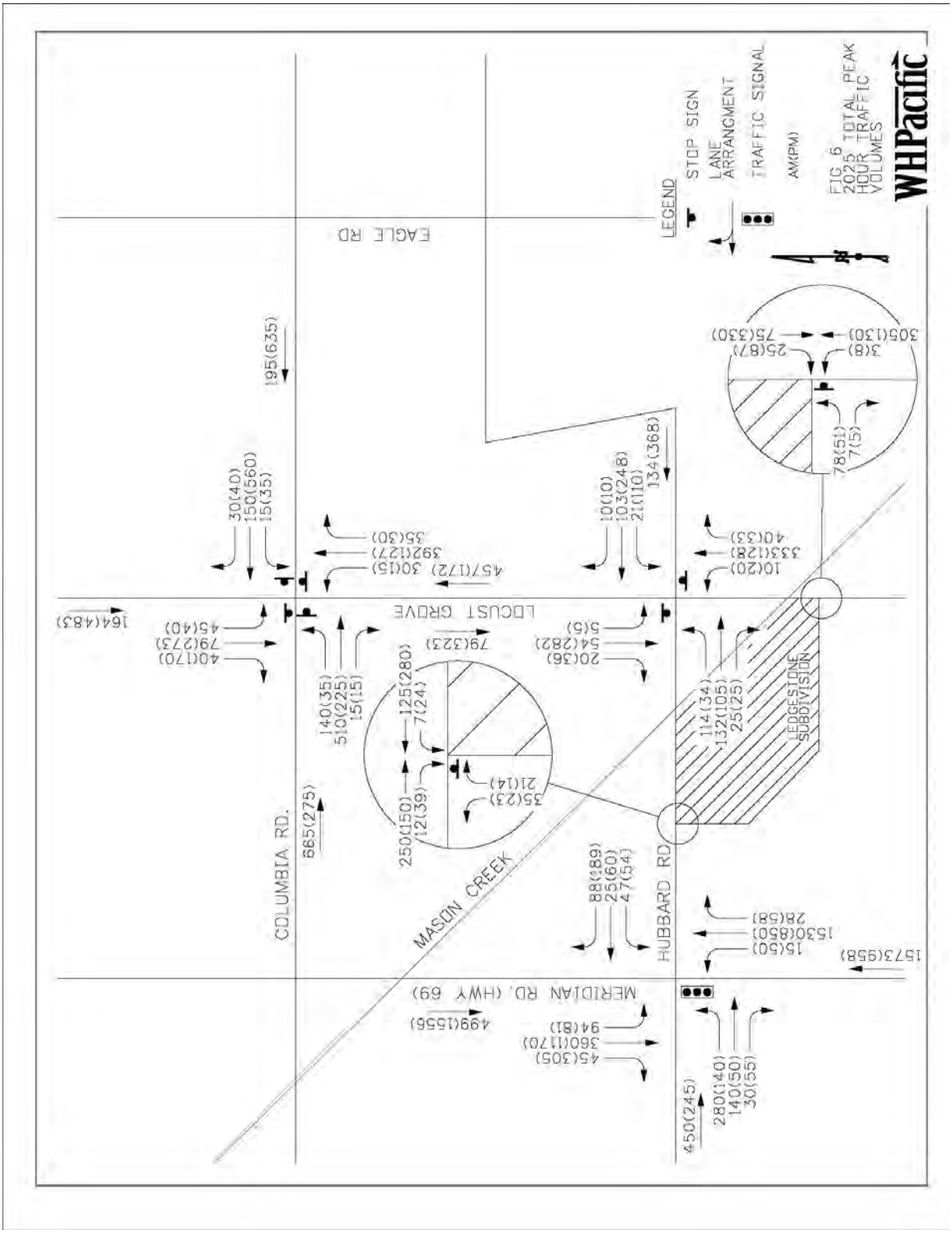

WHPacific
FIG 5
PEAK HOUR
SITE TRAFFIC
AM(PM)
TRAFFIC SIGNAL
LANE
ARRANGMENT
STOP SIGN
LEGEND
EAGLE RD
14(48)
42(28)
3(8)
11(40)
35(23)
43(28)
25(87)
3(8)
57(37)
LOCUST GROVE
19(63)
5(16)
14(47)
14(9)
7(5)
78(51)
7(5)
LEDGESTONE
SUBDIVISION
7(24)
MASON CREEK
COLUMBIA RD.
21(14)
35(23)
12(39)
28(19)
7(4)
HUBBARD RD
3(8)
MERIDIAN RD. (HWY 69)
9(31)

Figure 6


WHPacific
FIG 6
2025 TOTAL PEAK HOUR TRAFFIC VOLUMES
AM(PM)
TRAFFIC SIGNAL
LANE ARRANGMENT
STOP SIGN
LEGEND
EAGLE RD
LOCUST GROVE
COLUMBIA RD.
HUBBARD RD
MERIDIAN RD. (HWY 69)
MASON CREEK
LEDGESTONE SUBDIVISION
195(635)
30(40)
150(560)
15(35)
45(40)
79(273)
40(170)
164(483)
140(35)
510(225)
15(15)
125(280)
7(24)
79(323)
250(150)
12(39)
21(14)
35(23)
565(275)
45(172) 30(15)
392(127)
55(30)
10(10)
103(248)
21(110)
134(368)
5(5)
54(282)
20(36)
10(20)
333(128)
40(33)
305(130)
75(330)
3(8)
25(87)
78(51)
7(5)
114(34)
132(105)
25(25)
88(189)
25(60)
47(54)
15(50)
153(850)
28(58)
157(958)
499(1556)
94(81)
360(1170)
45(305)
450(245)
280(140)
140(50)
30(55)

Level-of-Service Intersections

Each of the intersections within the study area was evaluated under existing (or previously mitigated) traffic control, lane configuration and 2025 site plus background peak hour volumes. *HCS7* Reports are included in the Appendix and results are summarized in Table 9.

Table 9 – Intersection Traffic Operations – 2025 Site Plus Background Traffic

Intersection	Traffic Control Lane Group	AM LOS/Delay/v/c	PM LOS/Delay/v/c
Hubbard Rd/ SH69	Traffic Signal	D/53.4	D/38.0
	Eastbound	D/40.3/0.90	D/42.4/0.83
	Westbound	D/50.2/0.77	D/45.8/0.88
	Northbound	E/67.7/1.04	C/23.3/0.70
	Southbound	C/21.0/0.80	D/44.9/0.97
Hubbard Rd/ Locust Grove	TWSC	NR	NR
	Eastbound	NR/4.1/0.11	NR/2.3/0.04
	Westbound	NR/1.2/0.02	NR/2.8/0.08
	Northbound	F/116.2/1.12	NR/NR/NR
	Southbound	NR/NR/NR	F/159.2/1.22
Columbia Rd/ Locust Grove	Traffic Signal	B/16.6	B/15.9
	Eastbound	B/17.5/0.72	B/13.8/0.35
	Westbound	A/8.1/0.21	B/13.9/0.68
	Northbound	B/18.5/0.78	B/15.8/0.29
	Southbound	B/17.5/0.23	B/19.6/0.85
Stroebel Rd/Hubbard Rd	TWSC	NR	NR
	Eastbound	NR	NR
	Westbound	NR/0.6/0.01	NR/1.0/0.03
	Northbound	B/11.4/0.13	B/11.5/0.09
	Southbound	NA	NA
Rio Vallegas/Locust Grove	TWSC	NR	NR
	Eastbound	B/11.9/0.13	B/13.2/0.10
	Westbound	NA	NA
	Northbound	NR/0.1/0.00	NR/0.6/0.01
	Southbound	NR	NR

NR = not reported
TWSC = Two-way stop control
AWSC = All-way stop control
NA = Not applicable

As previously noted at Hubbard Road and SH69, the heavy through volume in the northbound direction under AM peak hour conditions is slightly over capacity. Overall, the intersection operates at LOS D in both the AM and PM peak hour conditions and other critical movement v/c ratios are less than 1.0. The additional site generated traffic at this location with the development is low, approximately 2% of 2025 background volumes. Further improvement at this location, beyond that anticipated by the ACHD *CIP,* would be subject to ITD approval.

Due to an approximate 20% increase in traffic volumes, further operational impacts are observed at Hubbard and Locust Grove under this scenario. In the northbound and southbound direction, LOS F and

v/c ratios in excess of 1.0 are expected. Under these conditions, signal warrants at this location were reviewed. Results indicate that prevailing forecast traffic conditions at this intersection would be well shy of meeting warrants for a traffic signal. The detailed signal warrant analysis is provided in the Appendix. Alternatively, a four-way stop controlled intersection was also considered as a mitigation measure, but forecast traffic conditions do not meet *MUTCD* multi-way stop application thresholds. Further, forecast turn movements do not indicate unusually heavy traffic volumes so additional auxiliary lane capacity does not appear justified. Therefore, further improvements at this location are not recommended.

Turn Lane Analysis

As indicated above two full access approaches are proposed for the development. One is located approximately 300 feet south of Hubbard Road, off S. Stroebel Road, toward the east, and the other is off Locust Grove, toward the west, south of Mason Creek Ditch (aka E. Rio Vallegas Street). Each site access approach forms a T-intersection with the existing roadway and is proposed to be stop-controlled. As noted in the above stop-controlled analysis both locations are expected to operate under favorable LOS and v/c conditions.

A turn lane analysis was further conducted at each of the locations using the turn lane threshold graphs provided in the ACHD Policy. While neither location appears to warrant a left turn lane, and a right turn lane is not warranted at S. Stroebel Road; a right turn lane appears to be warranted in the southbound direction at Locust Grove Road and E. Rio Vallegas Street.

SUMMARY OF RESULTS

The study's key findings are summarized below.

Existing Traffic Conditions

1. For the existing traffic conditions analyzed with the existing roadway lane configuration, all study area roadway segments meet ACHD's minimum operational thresholds. Therefore, no roadway improvements are needed to mitigate the existing traffic.
2. For the existing traffic conditions analyzed with the existing intersection control and lane configuration, all study area intersections meet ACHD's minimum operational thresholds. Therefore, no intersection improvements are needed to mitigate the existing traffic.

2025 Background Traffic Conditions

3. There are no planned improvements to the study roadways or intersections by 2025 according to ACHD's current *FYWP* and *CIP*.
4. For the 2025 background traffic conditions analyzed with the existing roadway lane configuration, all study area roadway segments meet ACHD's minimum operational thresholds. Therefore, no roadway improvements are needed to mitigate 2025 background traffic.
5. For the 2025 background traffic conditions analyzed with the existing intersection control and lane configuration, one of the three study area intersections do not meet ACHD's minimum operational thresholds. The intersection of Columbia Road and Locust Grove is expected to meet traffic signal warrants under 2025 forecast conditions, therefore installation of a traffic signal is recommended to fully mitigate 2025 background traffic conditions.

   Isolated performance issues are noted at the intersection of SH69 and Hubbard Road in the northbound and southbound direction. Overall, the intersection operates at an acceptable LOS D and no improvements have been recommended at this location. Further mitigation is subject to ITD review and approval.

2025 Site Plus Background Traffic Conditions

6. This scenario reflects the full buildout of 254 single family dwelling units which is expected to generate 2,298 daily trips, 188 AM peak hour trips, and 251 PM peak hour trips.

7. Site traffic is anticipated to have the following general distribution pattern:

    - SH69 (North) 20%
    - SH69 (South) 5%
    - Locust Grove Rd (North) 40%
    - Locust Grove Rd (South) 5%
    - Hubbard Rd (East) to Eagle Rd 30%

8. For the 2025 site plus background traffic conditions analyzed with the existing roadway lane configuration, all study area roadway segments meet ACHD's minimum operation thresholds. Therefore, no roadway improvements are needed to mitigate the site plus background traffic.

9. For the 2025 site plus background traffic conditions analyzed with the existing (and 2025 background improvements) intersection control and lane configuration, all study area intersections meet ACHD's minimum operational thresholds. Therefore, no further intersection improvements are needed to mitigate the 2025 site plus traffic.

    Isolated performance issues are noted at the intersection of SH69 and Hubbard Road in the northbound and southbound direction. Overall, the intersection operates at an acceptable LOS D and no improvements have been recommended at this location. Further mitigation is subject to ITD review and approval.

10. Two full access (T-intersection approaches) at Hubbard Road and S. Stroebel Road, and Locust Grove Road and E. Rio Vallegas Street will serve primary access to the subdivision. With the 2025 site plus background traffic conditions, stop control and the proposed lane configuration, the critical minor movements at the proposed site access intersections are expected to operate at LOS B or better.

11. With the 2025 site plus background traffic conditions, turn lane warrants are satisfied as follows:

    - Locust Grove and E. Rio Vallegas Street – southbound right turn lane

APPENDIX

Johnson-Kuna Proposed Development

The following summarizes the results of an area of influence model run for a proposed development located southwest of Hubbard and Locust Grove Roads. The proposed development will consist of 254 single family homes with an anticipated build out by 2025. See figure 1.

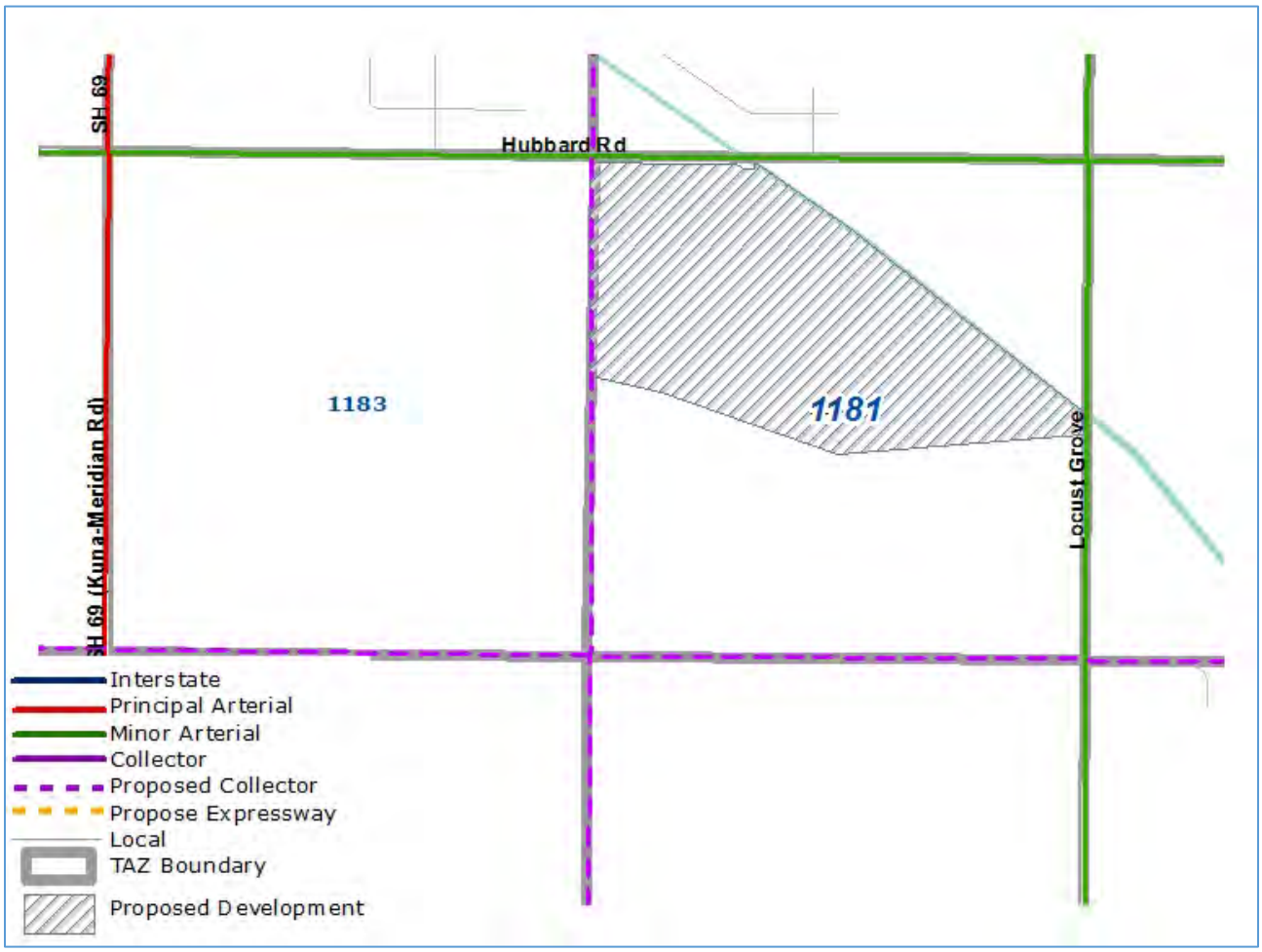


Figure 1: TAZ 1181

Table 1 provides the existing demographics for TAZ 1181, and the proposed development's demographics used for the area of influence model run.

Table 1

	2018		2025 with proposal		2040	
	HH	Jobs	HH	Jobs	HH	Jobs
TAZ 1181	6	15	260	15	6	15

The area of influence results for the proposed development are shown in figures 2. The 2025 peak hour results are shown in figures 3 and 4.

Figure 2: Area of Influence, Peak hour demand contribution to the total peak hour demand for 2025

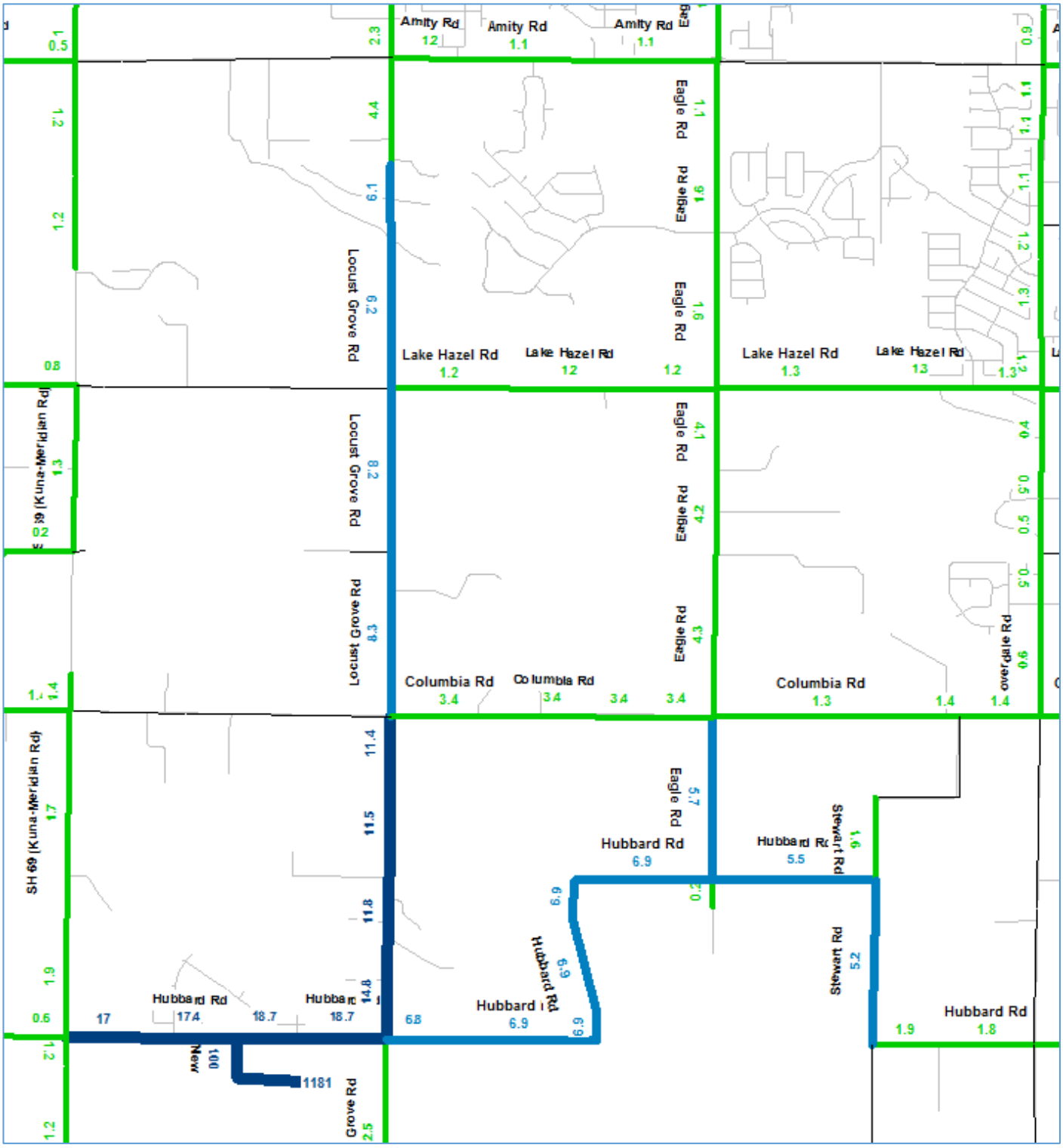


Figure 3: 2025 Peak Hour Demand with Proposed Development

Figure 4: 2025 Peak Hour Demand without Proposed Development

Cumulative Development

Figure 5 below shows the location of the preliminary plats adjacent to the proposed development. This entitled development is already included the demographic data set therefore, a cumulative development model run was not necessary.

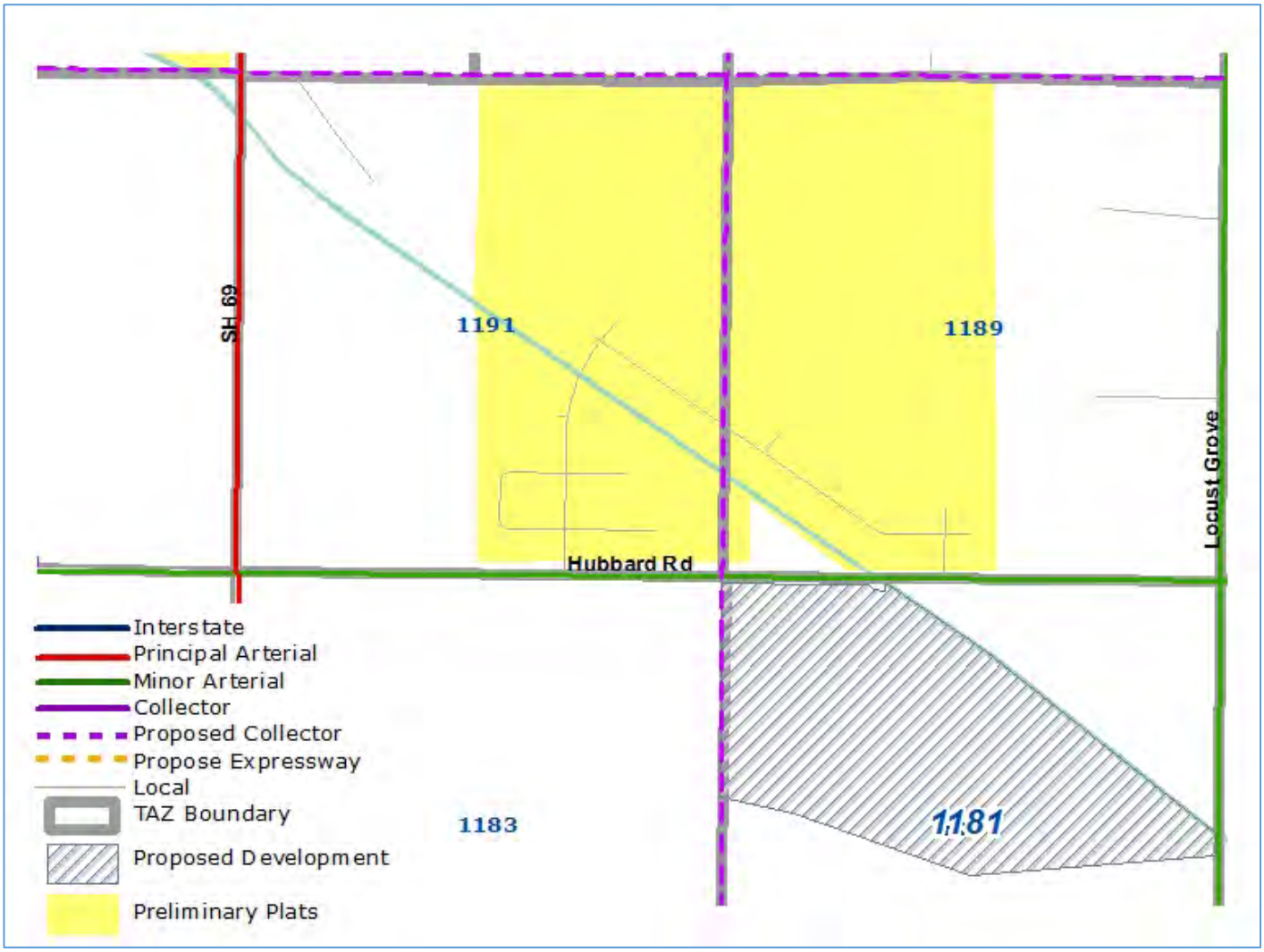


Figure 5

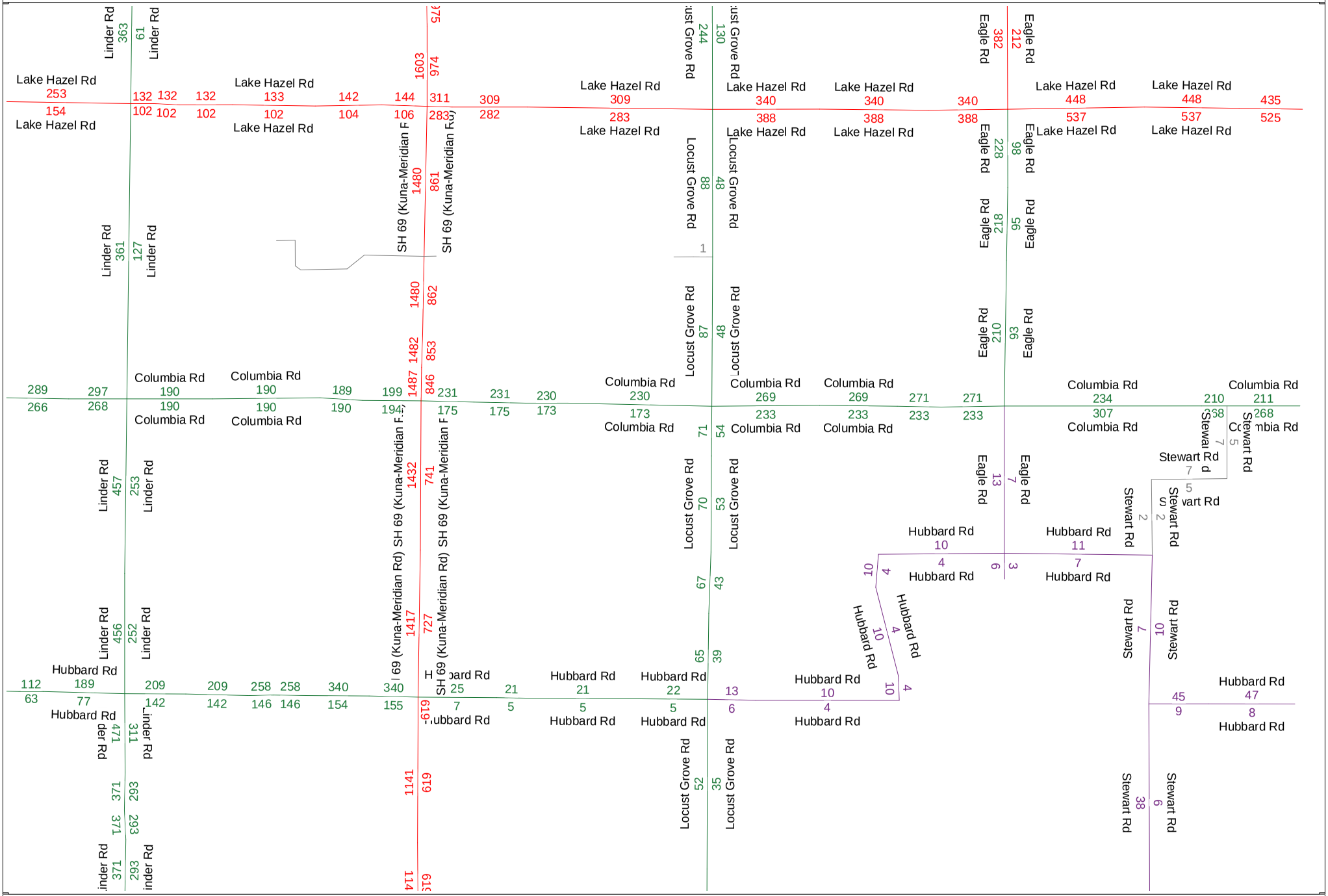
Table 2 provides the existing and forecasted demographics for TAZ 1181, 1189 and 1191.

Table 2

TAZ	2018		2025		2040	
	HH	Jobs	HH	Jobs	HH	Jobs
1181	6	1	260*	1	6	1
1189	7	25	242	25	242	25
1191	39	57	486	113	544	232

*Includes the proposed development used for the special model run.

2018 Peak Hour Build: 2018 Demographics on 2018 Network
8/15/2018



D:\UAG\2011Model\calibration\Base\TIP\FY1923R4\b2018\PH_ASSIGN_b2018.NET
New Regional Model calibrated to 2011/12 conditions - completed in January 2015

cube

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Meridian Rd / Hubbard Rd
City, State: Ada County, Idaho
Control: Stop Sign

File Name : Meridian Rd & Hubbard Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 1

Groups Printed- General Traffic

	Meridian Raod From North					Hubbard Road From East					SH-69 (Meridian Road) From South					Hubbard Road From West					
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
07:00 AM	8	52	0	0	60	1	0	3	0	4	0	229	3	0	232	1	6	36	0	43	339
07:15 AM	5	72	5	0	82	2	1	2	0	5	1	254	2	0	257	2	8	46	0	56	400
07:30 AM	10	75	5	0	90	4	1	0	0	5	1	226	2	0	229	5	7	39	0	51	375
07:45 AM	19	125	4	0	148	3	2	2	0	7	2	165	2	0	169	6	2	12	1	21	345
Total	42	324	14	0	380	10	4	7	0	21	4	874	9	0	887	14	23	133	1	171	1459
08:00 AM	7	89	5	0	101	2	0	1	0	3	1	184	4	0	189	5	0	28	0	33	326
08:15 AM	10	70	3	0	83	1	0	2	0	3	2	176	3	0	181	4	1	26	1	32	299
08:30 AM	17	85	5	1	108	8	2	4	0	14	1	193	4	0	198	5	4	29	0	38	358
08:45 AM	13	81	2	0	96	3	0	0	0	3	2	143	4	0	149	4	1	30	0	35	283
Total	47	325	15	1	388	14	2	7	0	23	6	696	15	0	717	18	6	113	1	138	1266

04:00 PM	46	182	6	0	234	3	4	1	0	8	4	115	6	0	125	8	1	13	0	22	389
04:15 PM	70	239	3	0	312	1	1	1	0	3	1	122	6	0	129	8	0	10	0	18	462
04:30 PM	60	209	4	0	273	8	4	2	0	14	1	117	10	0	128	9	1	8	0	18	433
04:45 PM	59	227	4	0	290	8	3	4	0	15	1	119	8	0	128	7	1	12	0	20	453
Total	235	857	17	0	1109	20	12	8	0	40	7	473	30	0	510	32	3	43	0	78	1737
05:00 PM	70	251	4	0	325	9	2	3	0	14	4	117	6	0	127	9	4	18	0	31	497
05:15 PM	71	266	4	0	341	12	3	2	0	17	3	134	9	0	146	7	2	17	0	26	530
05:30 PM	65	249	2	0	316	6	3	2	0	11	0	126	9	0	135	7	1	14	0	22	484
05:45 PM	67	281	5	0	353	2	1	2	0	5	1	108	5	0	114	5	2	18	0	25	497
Total	273	1047	15	0	1335	29	9	9	0	47	8	485	29	0	522	28	9	67	0	104	2008
Grand Total	597	2553	61	1	3212	73	27	31	0	131	25	2528	83	0	2636	92	41	356	2	491	6470
Apprch %	18.6	79.5	1.9	0		55.7	20.6	23.7	0		0.9	95.9	3.1	0		18.7	8.4	72.5	0.4		
Total %	9.2	39.5	0.9	0	49.6	1.1	0.4	0.5	0	2	0.4	39.1	1.3	0	40.7	1.4	0.6	5.5	0	7.6	

L2 Data Collection

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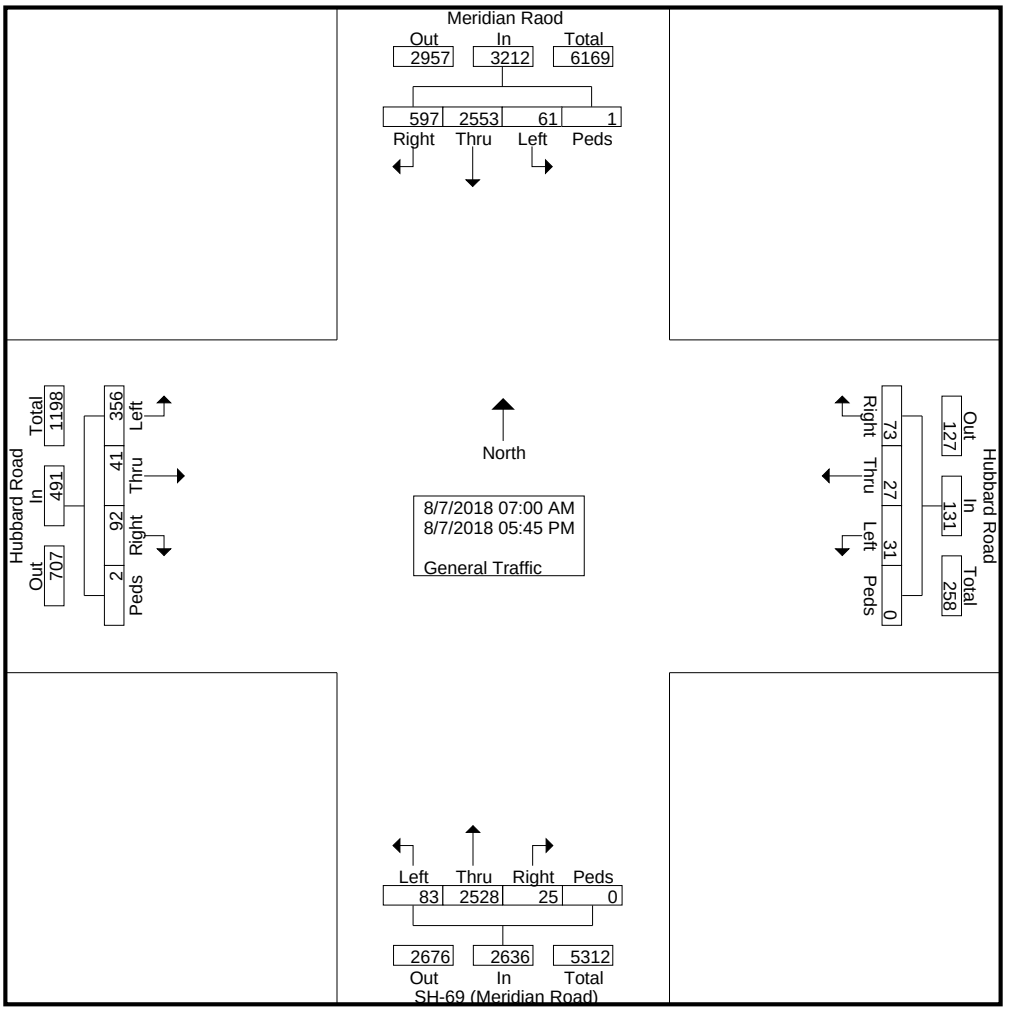
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Meridian Rd / Hubbard Rd
City, State: Ada County, Idaho
Control: Stop Sign

File Name : Meridian Rd & Hubbard Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 2



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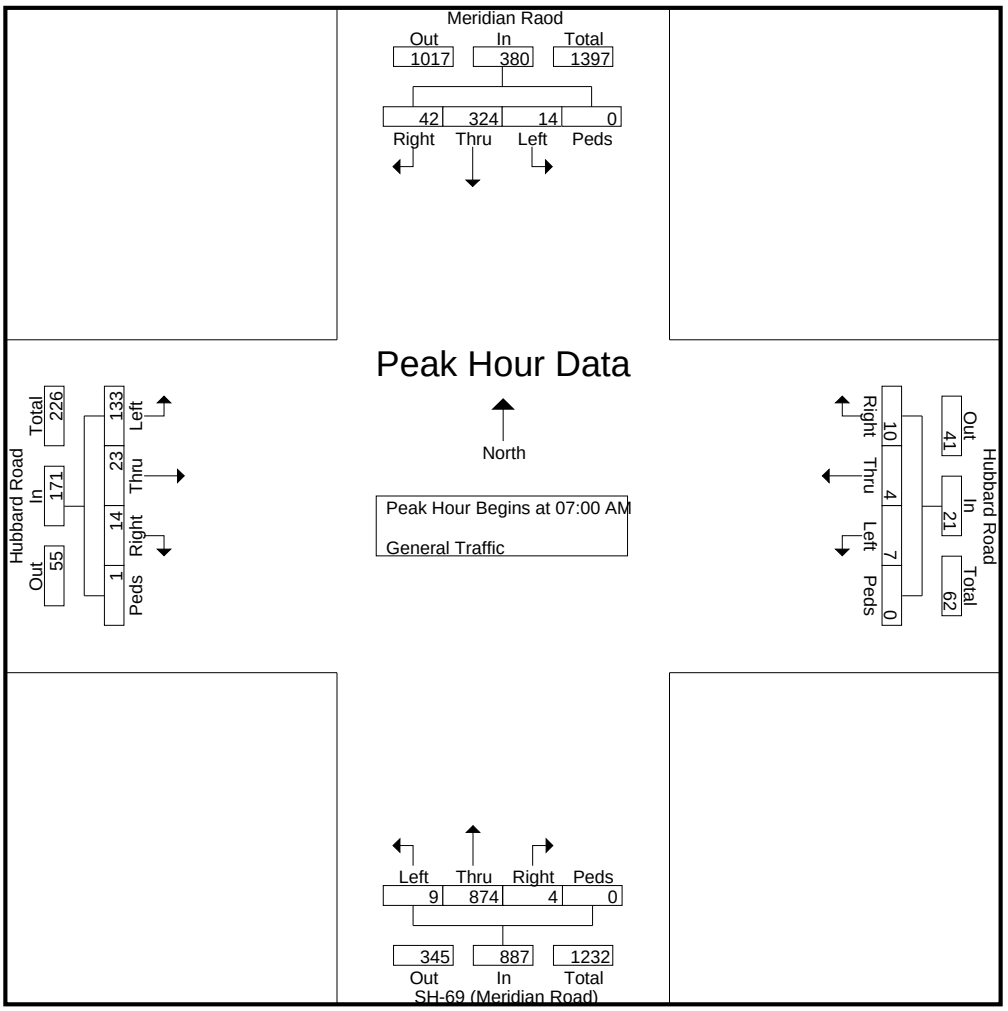
Study: WHPA0002
Intersection: Meridian Rd / Hubbard Rd
City, State: Ada County, Idaho
Control: Stop Sign

File Name : Meridian Rd & Hubbard Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 3

	Meridian Raod From North					Hubbard Road From East					SH-69 (Meridian Road) From South					Hubbard Road From West					
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	8	52	0	0	60	1	0	**3**	0	4	0	229	**3**	0	232	1	6	36	0	43	339
07:15 AM	5	72	**5**	0	82	2	1	2	0	5	1	**254**	2	0	**257**	2	**8**	**46**	0	**56**	**400**
07:30 AM	10	75	5	0	90	**4**	1	0	0	5	1	226	2	0	229	5	7	39	0	51	375
07:45 AM	**19**	**125**	4	0	**148**	3	**2**	2	0	**7**	**2**	165	2	0	169	**6**	2	12	**1**	21	345
Total Volume	42	324	14	0	380	10	4	7	0	21	4	874	9	0	887	14	23	133	1	171	1459
% App. Total	11.1	85.3	3.7	0		47.6	19	33.3	0		0.5	98.5	1	0		8.2	13.5	77.8	0.6		
PHF	.553	.648	.700	.000	.642	.625	.500	.583	.000	.750	.500	.860	.750	.000	.863	.583	.719	.723	.250	.763	.912



L2 Data Collection

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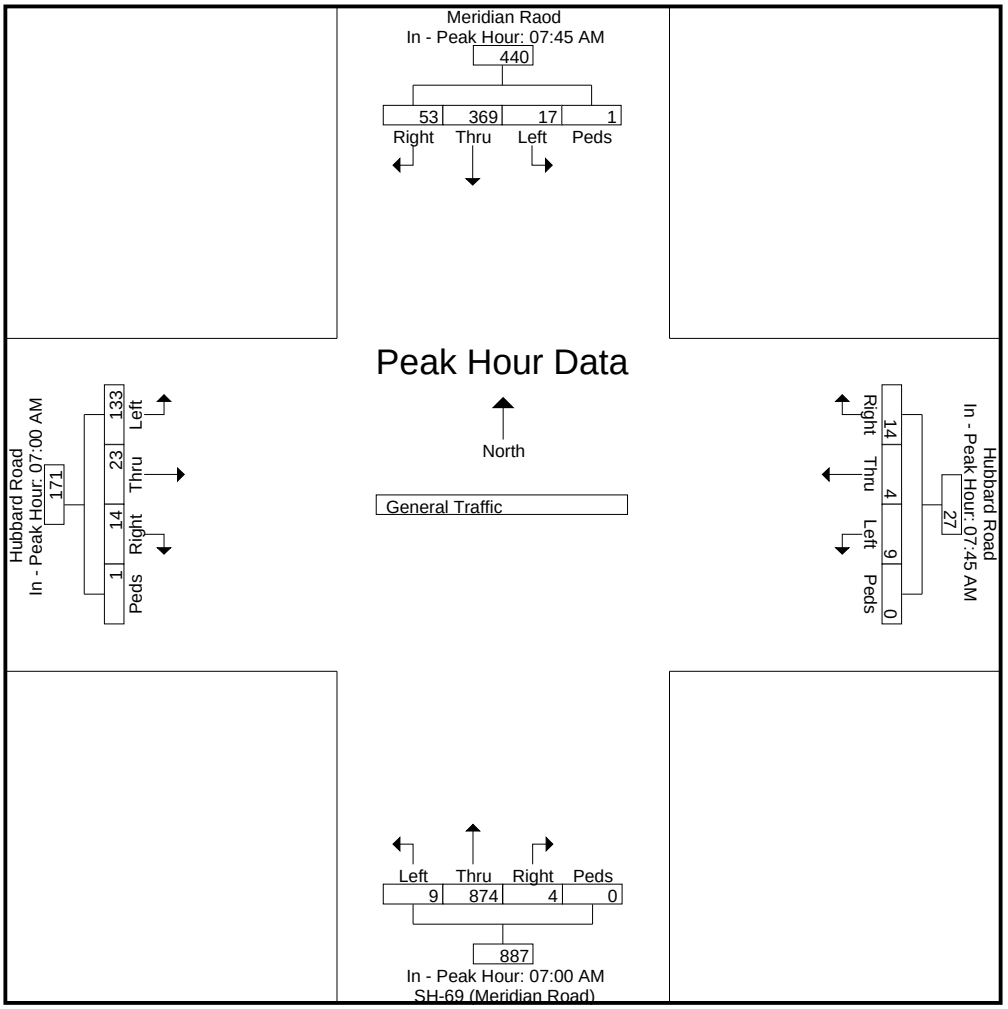
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Meridian Rd / Hubbard Rd
City, State: Ada County, Idaho
Control: Stop Sign

File Name : Meridian Rd & Hubbard Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 4

	Meridian Raod From North					Hubbard Road From East					SH-69 (Meridian Road) From South					Hubbard Road From West					
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 Each Approach Begins at:																					
	07:45 AM					07:45 AM					07:00 AM					07:00 AM					
+0 mins.	**19**	**125**	4	0	**148**	3	**2**	2	0	7	0	229	**3**	0	232	1	6	36	0	43	
+15 mins.	7	89	**5**	0	101	2	0	1	0	3	1	**254**	2	0	**257**	2	**8**	**46**	0	**56**	
+30 mins.	10	70	3	0	83	1	0	2	0	3	1	226	2	0	229	5	7	39	0	51	
+45 mins.	17	85	5	**1**	108	**8**	2	**4**	0	**14**	**2**	165	2	0	169	**6**	2	12	**1**	21	
Total Volume	53	369	17	1	440	14	4	9	0	27	4	874	9	0	887	14	23	133	1	171	
% App. Total	12	83.9	3.9	0.2		51.9	14.8	33.3	0		0.5	98.5	1	0		8.2	13.5	77.8	0.6		
PHF	.697	.738	.850	.250	.743	.438	.500	.563	.000	.482	.500	.860	.750	.000	.863	.583	.719	.723	.250	.763	



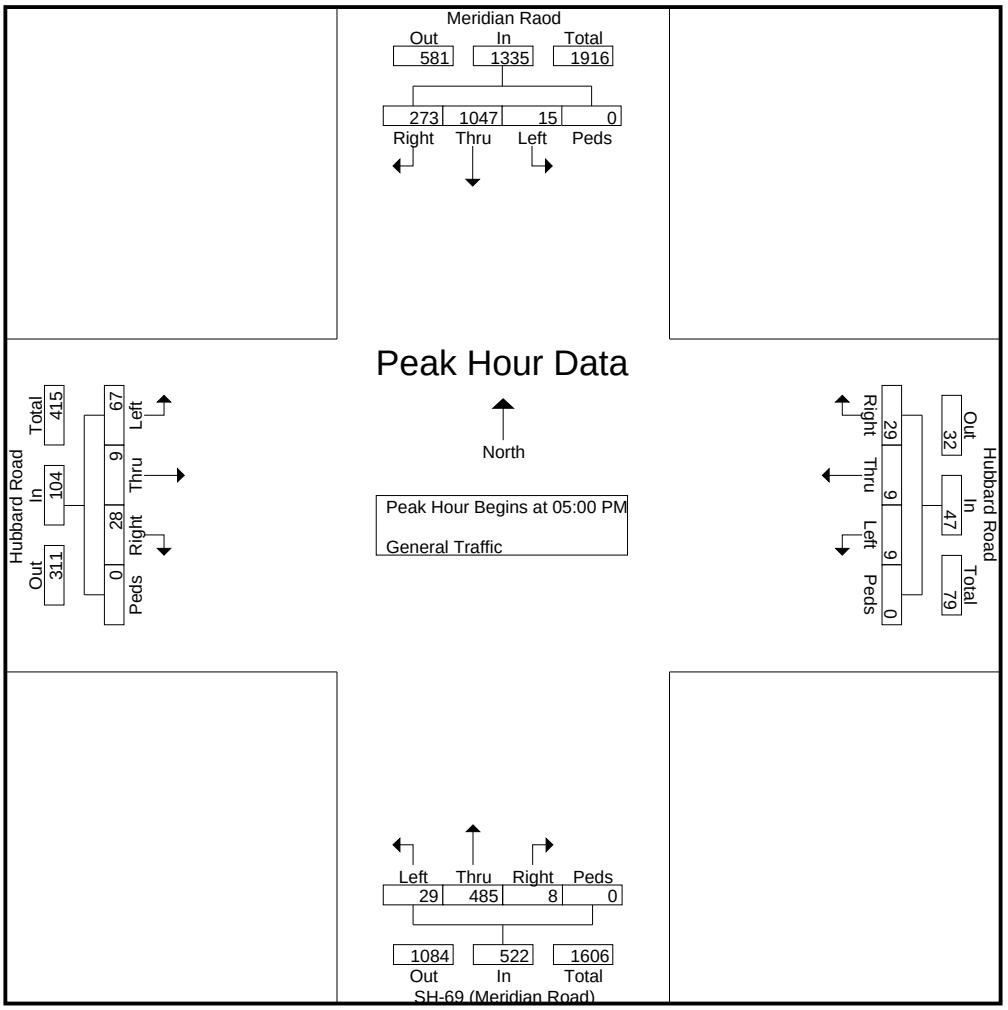
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Meridian Rd / Hubbard Rd
City, State: Ada County, Idaho
Control: Stop Sign

File Name : Meridian Rd & Hubbard Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 5

	Meridian Raod From North					Hubbard Road From East					SH-69 (Meridian Road) From South					Hubbard Road From West					
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 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	70	251	4	0	325	9	2	**3**	0	14	**4**	117	6	0	127	**9**	**4**	**18**	0	**31**	497
05:15 PM	**71**	266	4	0	341	**12**	**3**	2	0	**17**	3	**134**	**9**	0	**146**	7	2	17	0	26	**530**
05:30 PM	65	249	2	0	316	6	3	2	0	11	0	126	9	0	135	7	1	14	0	22	484
05:45 PM	67	**281**	**5**	0	**353**	2	1	2	0	5	1	108	5	0	114	5	2	18	0	25	497
Total Volume	273	1047	15	0	1335	29	9	9	0	47	8	485	29	0	522	28	9	67	0	104	2008
% App. Total	20.4	78.4	1.1	0		61.7	19.1	19.1	0		1.5	92.9	5.6	0		26.9	8.7	64.4	0		
PHF	.961	.931	.750	.000	.945	.604	.750	.750	.000	.691	.500	.905	.806	.000	.894	.778	.563	.931	.000	.839	.947



L2 Data Collection

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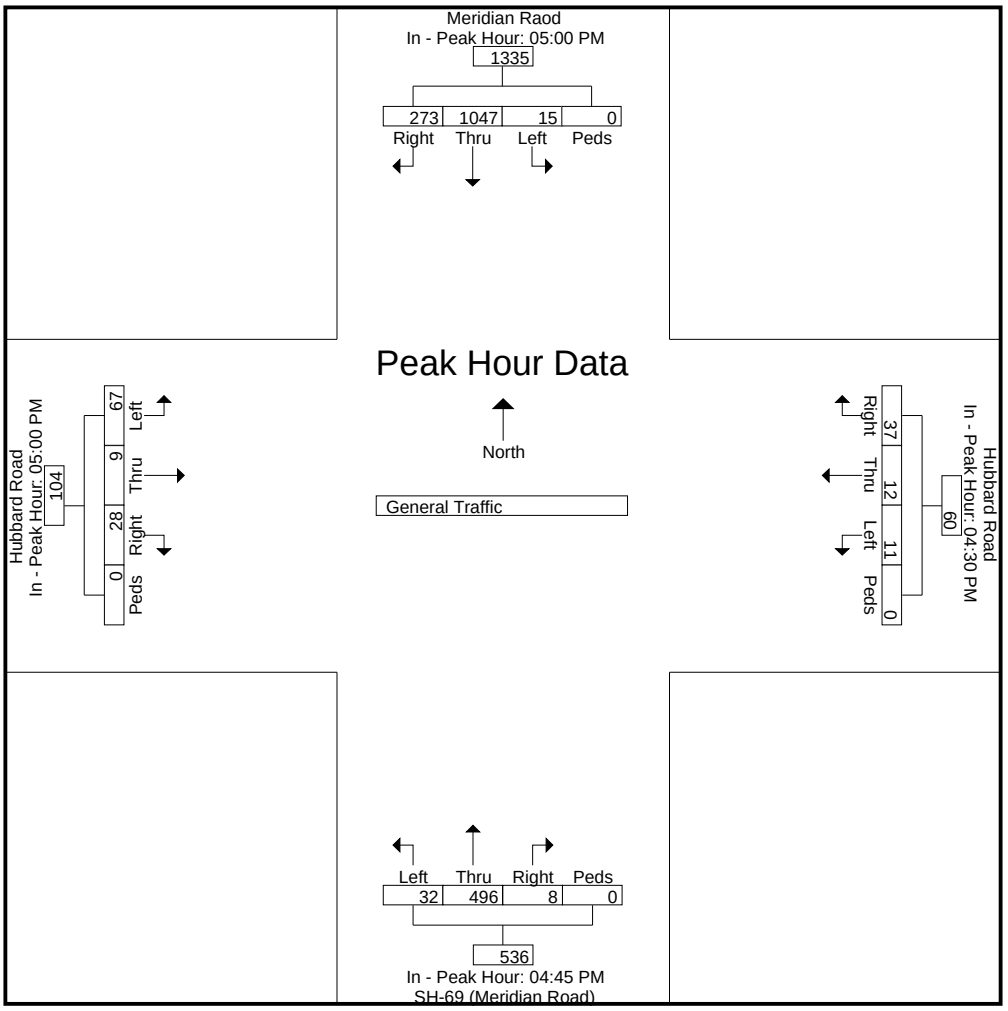
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Meridian Rd / Hubbard Rd
City, State: Ada County, Idaho
Control: Stop Sign

File Name : Meridian Rd & Hubbard Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 6

	Meridian Raod From North					Hubbard Road From East					SH-69 (Meridian Road) From South					Hubbard Road From West					
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 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	05:00 PM					04:30 PM					04:45 PM					05:00 PM					
+0 mins.	70	251	4	0	325	8	**4**	2	0	14	1	119	8	0	128	**9**	**4**	**18**	0	**31**	
+15 mins.	**71**	266	4	0	341	8	3	**4**	0	15	**4**	117	6	0	127	7	2	17	0	26	
+30 mins.	65	249	2	0	316	9	2	3	0	14	3	**134**	**9**	0	**146**	7	1	14	0	22	
+45 mins.	67	**281**	**5**	0	**353**	**12**	3	2	0	**17**	0	126	9	0	135	5	2	18	0	25	
Total Volume	273	1047	15	0	1335	37	12	11	0	60	8	496	32	0	536	28	9	67	0	104	
% App. Total	20.4	78.4	1.1	0		61.7	20	18.3	0		1.5	92.5	6	0		26.9	8.7	64.4	0		
PHF	.961	.931	.750	.000	.945	.771	.750	.688	.000	.882	.500	.925	.889	.000	.918	.778	.563	.931	.000	.839	



L2 Data Collection

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Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Meridian Rd / Hubbard Rd
City, State: Ada County, Idaho
Control: Stop Sign

File Name : Meridian Rd & Hubbard Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 7

Image 1

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Locust Grove / Hubbard Rd
City, State: Ada County, Idaho
Control: Stop Sign

File Name : Locust Grove Rd & Hubbard Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 1

Groups Printed- General Traffic

	Locust Grove Road From North					Hubbard Road From East					Locust Grove Road From South					Hubbard Road From West					
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
07:00 AM	0	1	0	0	1	0	3	0	0	3	0	10	0	0	10	0	3	4	0	7	21
07:15 AM	0	1	1	0	2	0	3	0	0	3	1	14	0	0	15	1	6	4	0	11	31
07:30 AM	4	5	0	0	9	0	2	0	0	2	0	8	0	0	8	1	5	3	0	9	28
07:45 AM	1	4	0	0	5	2	1	0	0	3	0	6	0	0	6	2	3	3	0	8	22
Total	5	11	1	0	17	2	9	0	0	11	1	38	0	0	39	4	17	14	0	35	102
08:00 AM	0	4	0	0	4	1	3	0	0	4	1	4	0	0	5	2	1	3	0	6	19
08:15 AM	0	6	1	0	7	0	2	0	0	2	0	10	0	0	10	0	1	1	0	2	21
08:30 AM	3	4	0	0	7	0	3	1	0	4	0	7	2	0	9	0	5	1	0	6	26
08:45 AM	1	4	0	0	5	0	0	0	0	0	1	2	0	0	3	0	1	0	0	1	9
Total	4	18	1	0	23	1	8	1	0	10	2	23	2	0	27	2	8	5	0	15	75

04:00 PM	2	16	0	0	18	0	3	4	0	7	1	2	0	0	3	0	2	0	0	2	30
04:15 PM	2	16	0	0	18	0	1	1	0	2	1	9	0	0	10	0	2	5	0	7	37
04:30 PM	0	12	0	0	12	0	5	1	0	6	1	3	0	0	4	1	0	1	0	2	24
04:45 PM	5	15	0	0	20	0	6	0	0	6	0	2	1	0	3	0	1	2	0	3	32
Total	9	59	0	0	68	0	15	6	0	21	3	16	1	0	20	1	5	8	0	14	123
05:00 PM	1	16	0	0	17	0	1	1	0	2	1	7	2	0	10	0	1	1	0	2	31
05:15 PM	1	14	0	0	15	0	2	3	0	5	0	2	0	0	2	1	3	1	0	5	27
05:30 PM	2	19	0	0	21	0	5	1	0	6	1	4	0	0	5	1	1	0	0	2	34
05:45 PM	3	15	0	0	18	0	3	3	0	6	1	3	0	0	4	2	4	0	0	6	34
Total	7	64	0	0	71	0	11	8	0	19	3	16	2	0	21	4	9	2	0	15	126
Grand Total	25	152	2	0	179	3	43	15	0	61	9	93	5	0	107	11	39	29	0	79	426
Apprch %	14	84.9	1.1	0		4.9	70.5	24.6	0		8.4	86.9	4.7	0		13.9	49.4	36.7	0		
Total %	5.9	35.7	0.5	0	42	0.7	10.1	3.5	0	14.3	2.1	21.8	1.2	0	25.1	2.6	9.2	6.8	0	18.5	

L2 Data Collection

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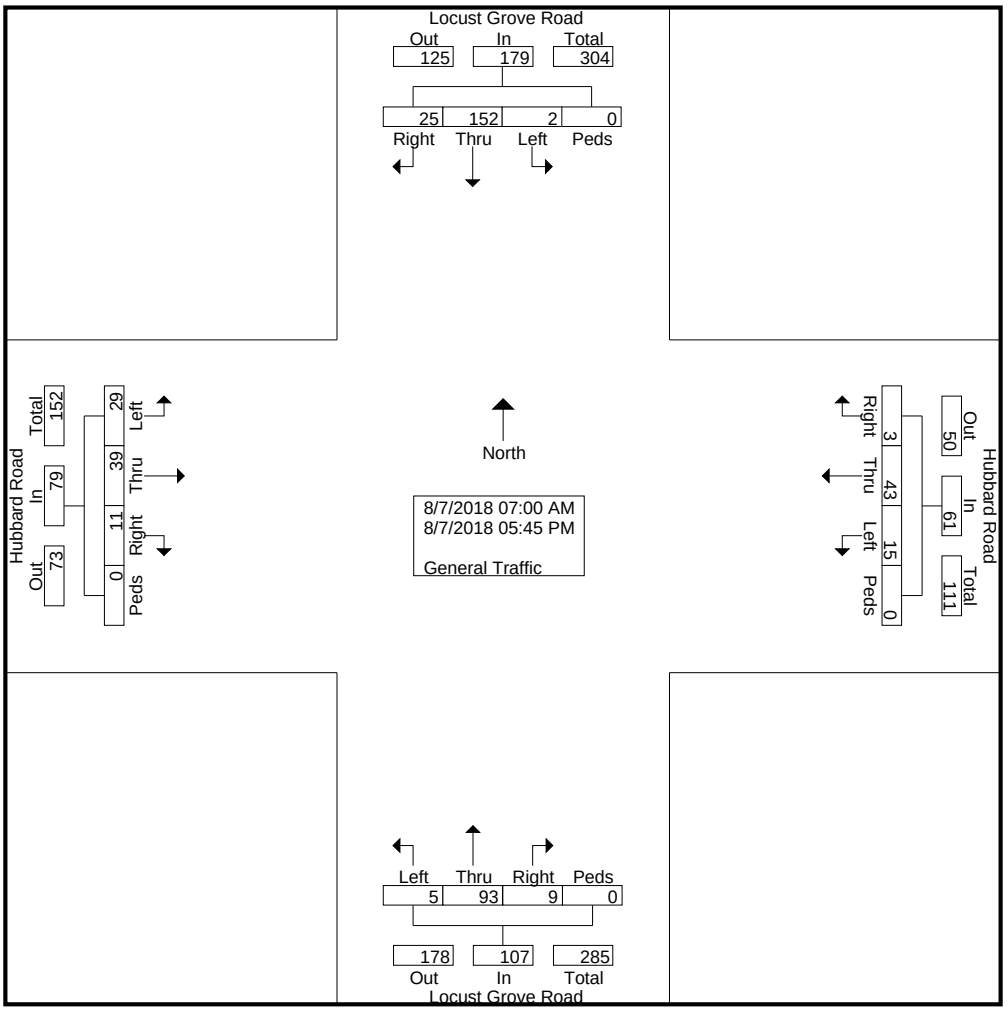
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Locust Grove / Hubbard Rd
City, State: Ada County, Idaho
Control: Stop Sign

File Name : Locust Grove Rd & Hubbard Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 2



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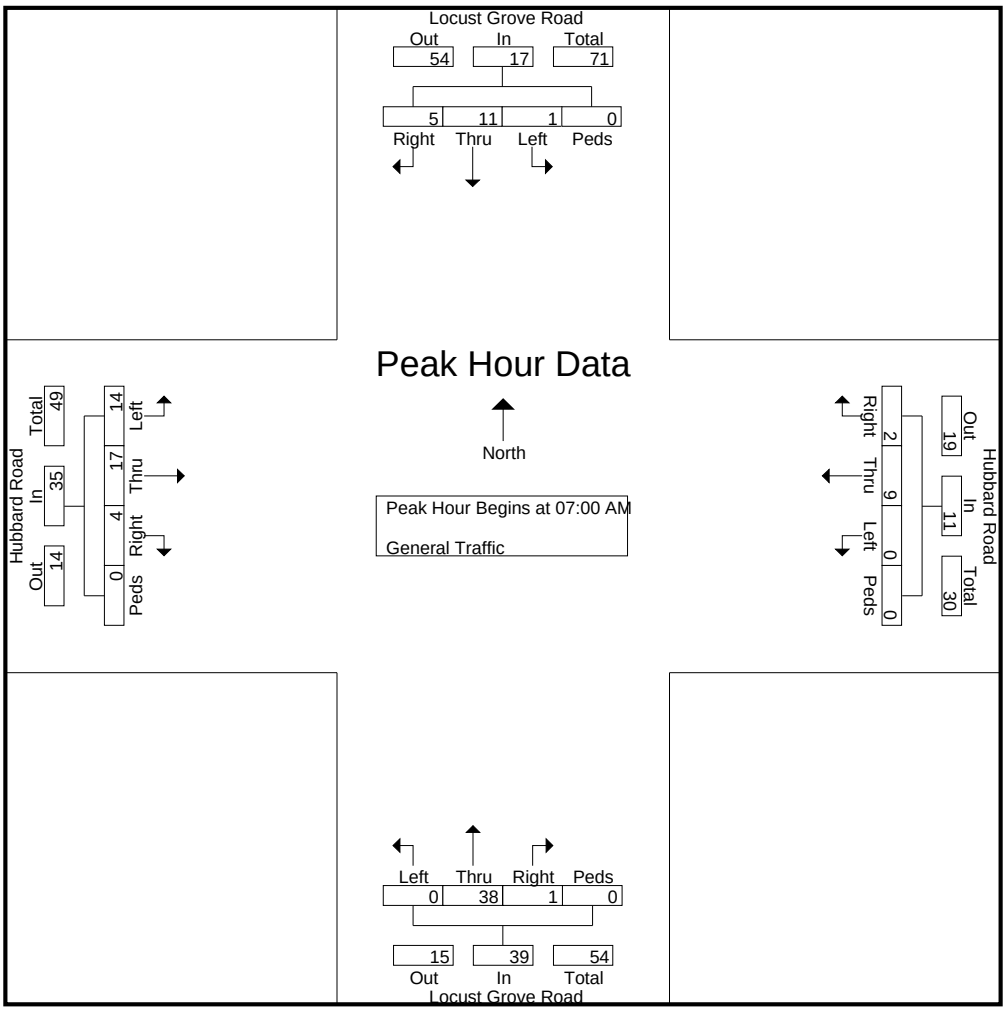
	Locust Grove Road From North					Hubbard Road From East					Locust Grove Road From South					Hubbard Road From West					
Start Time	**Right**	**Thru**	**Left**	**Peds**	**App. Total**	**Right**	**Thru**	**Left**	**Peds**	**App. Total**	**Right**	**Thru**	**Left**	**Peds**	**App. Total**	**Right**	**Thru**	**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	0	1	0	0	1	0	**3**	0	0	**3**	0	10	0	0	10	0	3	**4**	0	7	21
07:15 AM	0	1	**1**	0	2	0	3	0	0	3	**1**	**14**	0	0	**15**	1	**6**	4	0	**11**	**31**
07:30 AM	**4**	**5**	0	0	**9**	0	2	0	0	2	0	8	0	0	8	1	5	3	0	9	28
07:45 AM	1	4	0	0	5	**2**	1	0	0	3	0	6	0	0	6	**2**	3	3	0	8	22
Total Volume	5	11	1	0	17	2	9	0	0	11	1	38	0	0	39	4	17	14	0	35	102
% App. Total	29.4	64.7	5.9	0		18.2	81.8	0	0		2.6	97.4	0	0		11.4	48.6	40	0		
PHF	.313	.550	.250	.000	.472	.250	.750	.000	.000	.917	.250	.679	.000	.000	.650	.500	.708	.875	.000	.795	.823



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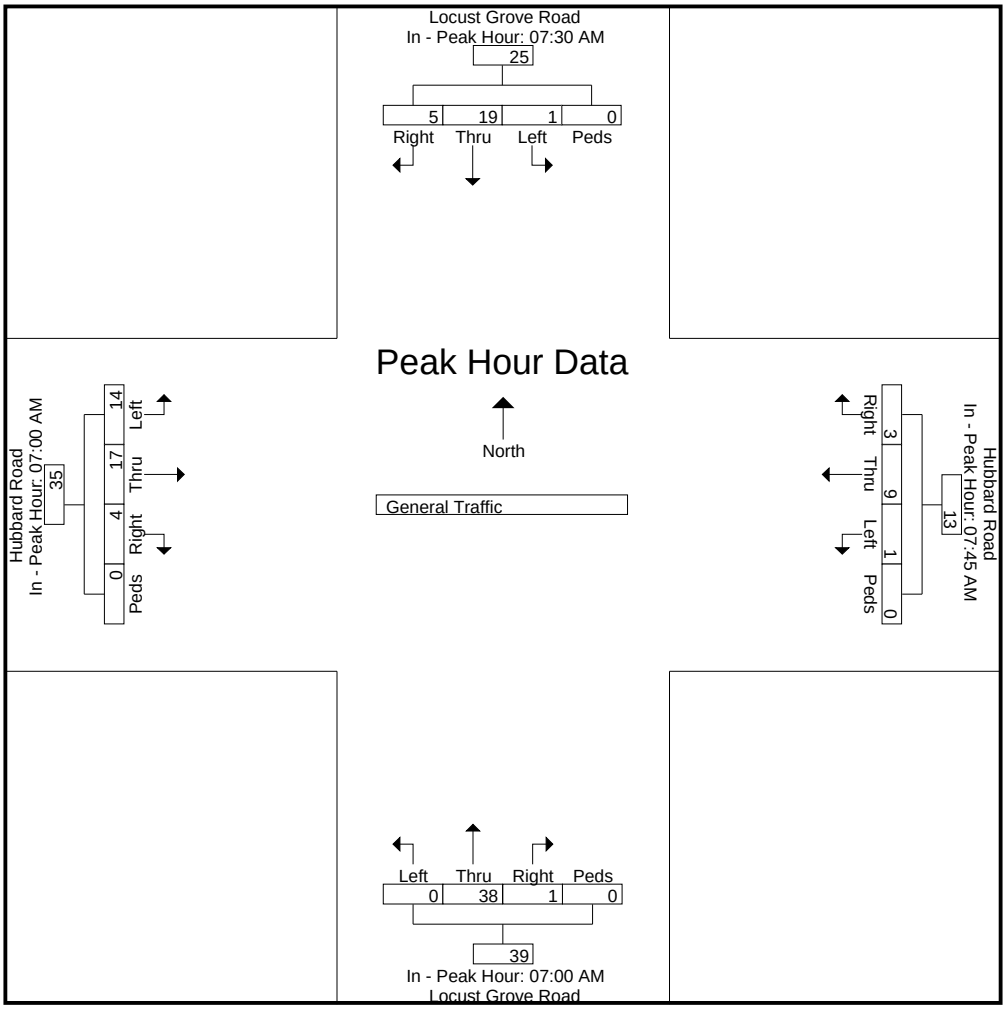
Study: WHPA0002
Intersection: Locust Grove / Hubbard Rd
City, State: Ada County, Idaho
Control: Stop Sign

File Name : Locust Grove Rd & Hubbard Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 4

	Locust Grove Road From North					Hubbard Road From East					Locust Grove Road From South					Hubbard Road From West					
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 Each Approach Begins at:																					
	07:30 AM					07:45 AM					07:00 AM					07:00 AM					
+0 mins.	**4**	5	0	0	**9**	**2**	1	0	0	3	0	10	0	0	10	0	3	**4**	0	7	
+15 mins.	1	4	0	0	5	1	**3**	0	0	**4**	**1**	**14**	0	0	**15**	1	**6**	4	0	**11**	
+30 mins.	0	4	0	0	4	0	2	0	0	2	0	8	0	0	8	1	5	3	0	9	
+45 mins.	0	**6**	**1**	0	7	0	3	**1**	0	4	0	6	0	0	6	**2**	3	3	0	8	
Total Volume	5	19	1	0	25	3	9	1	0	13	1	38	0	0	39	4	17	14	0	35	
% App. Total	20	76	4	0		23.1	69.2	7.7	0		2.6	97.4	0	0		11.4	48.6	40	0		
PHF	.313	.792	.250	.000	.694	.375	.750	.250	.000	.813	.250	.679	.000	.000	.650	.500	.708	.875	.000	.795	



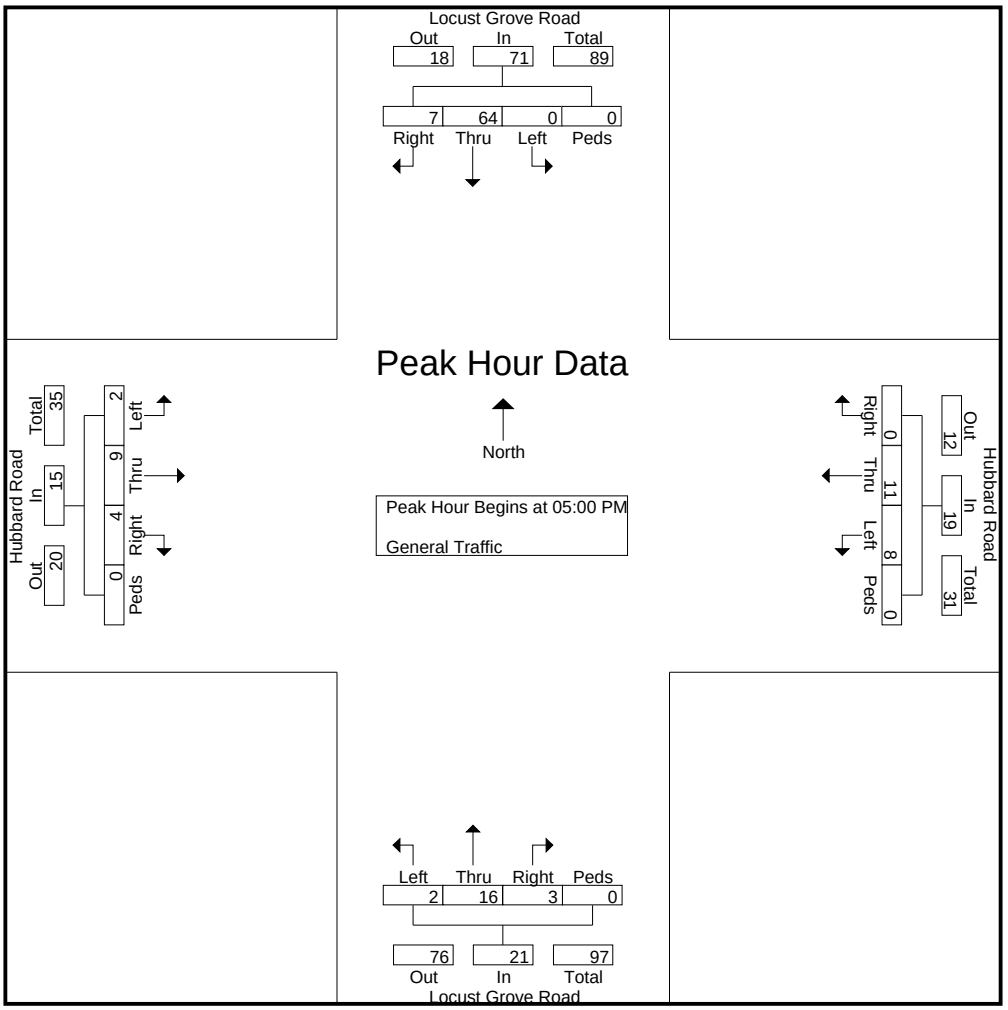
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Locust Grove / Hubbard Rd
City, State: Ada County, Idaho
Control: Stop Sign

File Name : Locust Grove Rd & Hubbard Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 5

	Locust Grove Road From North					Hubbard Road From East					Locust Grove Road From South					Hubbard Road From West					
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 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	1	16	0	0	17	0	1	1	0	2	**1**	**7**	**2**	0	**10**	0	1	**1**	0	2	31
05:15 PM	1	14	0	0	15	0	2	**3**	0	5	0	2	0	0	2	1	3	1	0	5	27
05:30 PM	2	**19**	0	0	**21**	0	**5**	1	0	**6**	1	4	0	0	5	1	1	0	0	2	**34**
05:45 PM	**3**	15	0	0	18	0	3	3	0	6	1	3	0	0	4	**2**	**4**	0	0	**6**	34
Total Volume	7	64	0	0	71	0	11	8	0	19	3	16	2	0	21	4	9	2	0	15	126
% App. Total	9.9	90.1	0	0		0	57.9	42.1	0		14.3	76.2	9.5	0		26.7	60	13.3	0		
PHF	.583	.842	.000	.000	.845	.000	.550	.667	.000	.792	.750	.571	.250	.000	.525	.500	.563	.500	.000	.625	.926



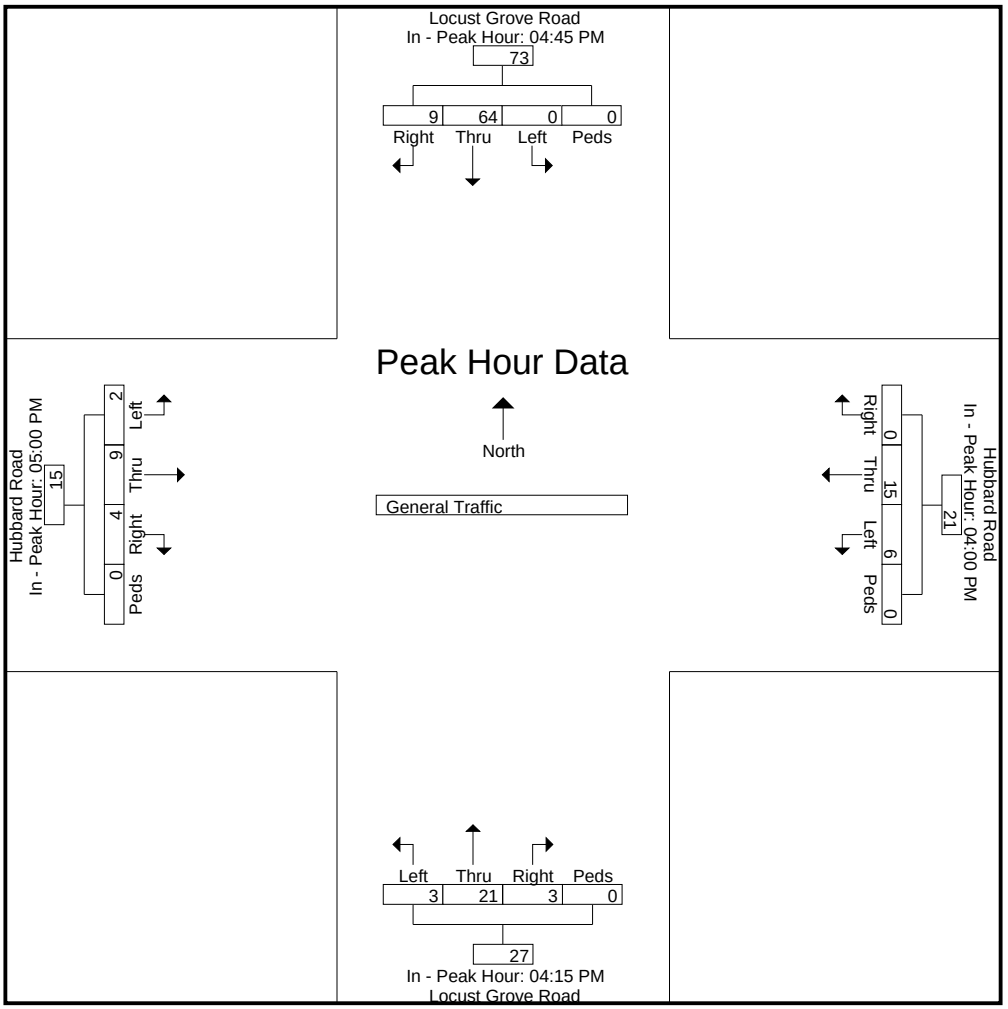
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Locust Grove / Hubbard Rd
City, State: Ada County, Idaho
Control: Stop Sign

File Name : Locust Grove Rd & Hubbard Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 6

	Locust Grove Road From North					Hubbard Road From East					Locust Grove Road From South					Hubbard Road From West					
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 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	04:45 PM					04:00 PM					04:15 PM					05:00 PM					
+0 mins.	**5**	15	0	0	20	0	3	**4**	0	**7**	**1**	**9**	0	0	**10**	0	1	**1**	0	2	
+15 mins.	1	16	0	0	17	0	1	1	0	2	1	3	0	0	4	1	3	1	0	5	
+30 mins.	1	14	0	0	15	0	5	1	0	6	0	2	1	0	3	1	1	0	0	2	
+45 mins.	2	**19**	0	0	**21**	0	**6**	0	0	6	1	7	**2**	0	10	**2**	**4**	0	0	**6**	
Total Volume	9	64	0	0	73	0	15	6	0	21	3	21	3	0	27	4	9	2	0	15	
% App. Total	12.3	87.7	0	0		0	71.4	28.6	0		11.1	77.8	11.1	0		26.7	60	13.3	0		
PHF	.450	.842	.000	.000	.869	.000	.625	.375	.000	.750	.750	.583	.375	.000	.675	.500	.563	.500	.000	.625	



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Locust Grove / Hubbard Rd
City, State: Ada County, Idaho
Control: Stop Sign

File Name : Locust Grove Rd & Hubbard Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 7

Image 1

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Locust Grove / Columbia Rd
City, State: Ada County, Idaho
Control: All Stop

File Name : Locust Grove Rd & Columbia Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 1

Groups Printed- General Traffic

	Locust Grove Road From North					Hubbard Road From East					Locust Grove Road From South					Columbia Road From West					
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
07:00 AM	1	1	2	0	4	1	12	0	0	13	2	11	0	0	13	0	41	15	0	56	86
07:15 AM	4	1	6	0	11	3	19	1	0	23	0	17	2	0	19	1	51	20	0	72	125
07:30 AM	8	7	7	0	22	4	21	2	0	27	3	9	0	0	12	3	69	14	0	86	147
07:45 AM	3	7	3	0	13	7	19	1	0	27	2	4	2	0	8	0	50	12	0	62	110
Total	16	16	18	0	50	15	71	4	0	90	7	41	4	0	52	4	211	61	0	276	468
08:00 AM	4	2	2	0	8	1	12	1	0	14	0	11	1	0	12	0	33	6	0	39	73
08:15 AM	1	3	1	0	5	5	10	0	0	15	4	10	1	0	15	2	19	8	0	29	64
08:30 AM	1	1	4	0	6	3	20	5	0	28	1	7	0	0	8	2	29	4	0	35	77
08:45 AM	0	2	3	0	5	5	11	1	0	17	1	5	1	0	7	2	25	4	0	31	60
Total	6	8	10	0	24	14	53	7	0	74	6	33	3	0	42	6	106	22	0	134	274

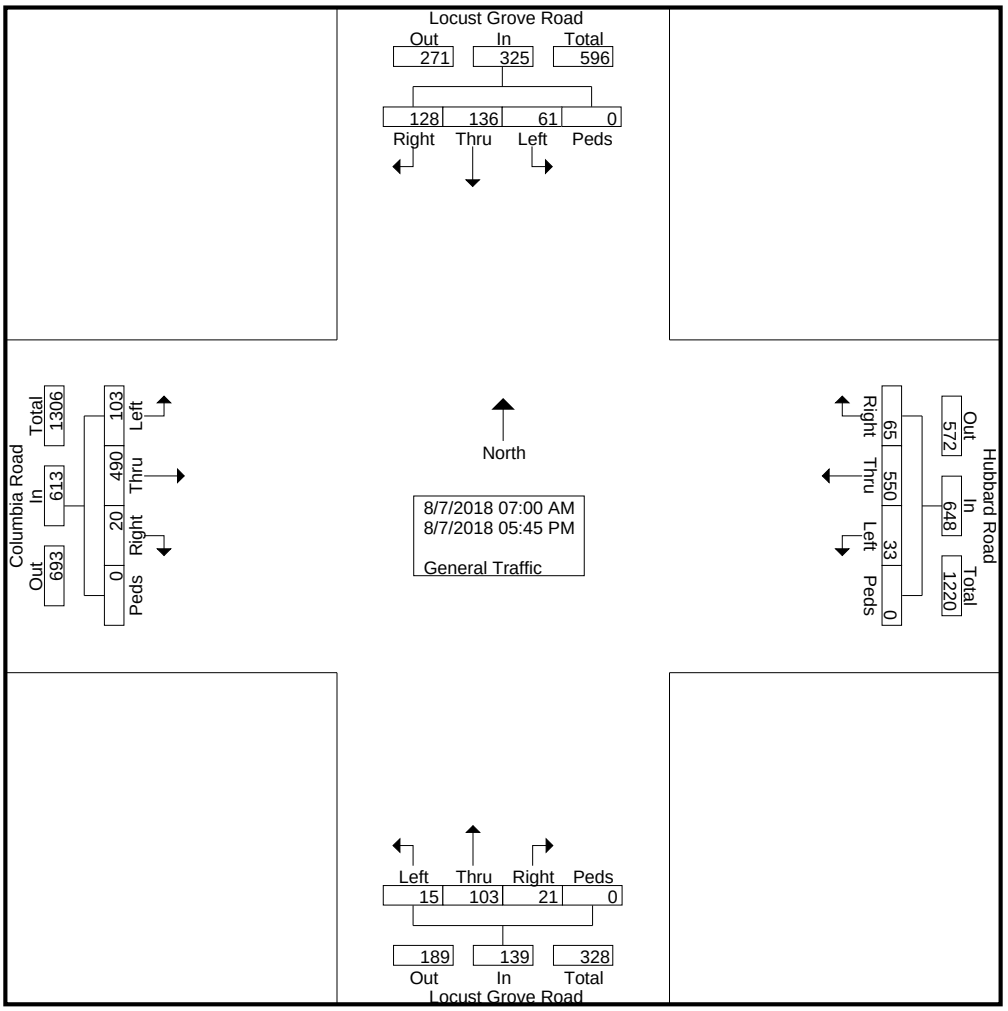
04:00 PM	6	14	6	0	26	7	41	2	0	50	1	0	1	0	2	2	13	0	0	15	93
04:15 PM	4	15	2	0	21	4	39	2	0	45	1	6	4	0	11	1	21	1	0	23	100
04:30 PM	12	12	5	0	29	1	44	2	0	47	0	8	0	0	8	1	18	2	0	21	105
04:45 PM	20	15	4	0	39	6	64	4	0	74	1	2	0	0	3	0	14	5	0	19	135
Total	42	56	17	0	115	18	188	10	0	216	3	16	5	0	24	4	66	8	0	78	433
05:00 PM	18	15	1	0	34	4	66	0	0	70	3	5	2	0	10	1	22	3	0	26	140
05:15 PM	16	12	6	0	34	7	68	3	0	78	1	2	0	0	3	1	29	3	0	33	148
05:30 PM	14	16	5	0	35	2	61	3	0	66	1	2	0	0	3	2	28	4	0	34	138
05:45 PM	16	13	4	0	33	5	43	6	0	54	0	4	1	0	5	2	28	2	0	32	124
Total	64	56	16	0	136	18	238	12	0	268	5	13	3	0	21	6	107	12	0	125	550
Grand Total	128	136	61	0	325	65	550	33	0	648	21	103	15	0	139	20	490	103	0	613	1725
Apprch %	39.4	41.8	18.8	0		10	84.9	5.1	0		15.1	74.1	10.8	0		3.3	79.9	16.8	0		
Total %	7.4	7.9	3.5	0	18.8	3.8	31.9	1.9	0	37.6	1.2	6	0.9	0	8.1	1.2	28.4	6	0	35.5	

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Locust Grove / Columbia Rd
City, State: Ada County, Idaho
Control: All Stop

File Name : Locust Grove Rd & Columbia Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 2



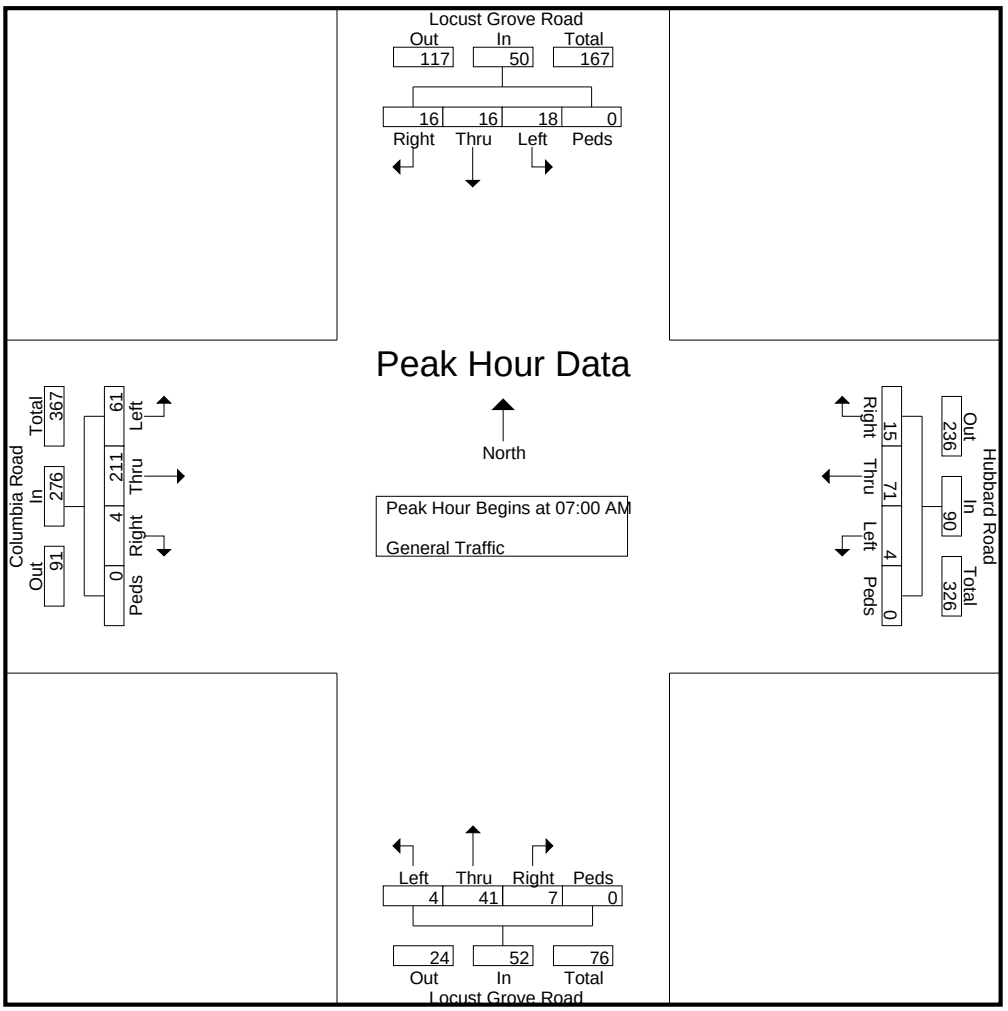
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Locust Grove / Columbia Rd
City, State: Ada County, Idaho
Control: All Stop

File Name : Locust Grove Rd & Columbia Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 3

	Locust Grove Road From North					Hubbard Road From East					Locust Grove Road From South					Columbia Road From West					
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	1	1	2	0	4	1	12	0	0	13	2	11	0	0	13	0	41	15	0	56	86
07:15 AM	4	1	6	0	11	3	19	1	0	23	0	**17**	**2**	0	**19**	1	51	**20**	0	72	125
07:30 AM	**8**	**7**	**7**	0	**22**	4	**21**	**2**	0	**27**	**3**	9	0	0	12	**3**	**69**	14	0	**86**	**147**
07:45 AM	3	7	3	0	13	**7**	19	1	0	27	2	4	2	0	8	0	50	12	0	62	110
Total Volume	16	16	18	0	50	15	71	4	0	90	7	41	4	0	52	4	211	61	0	276	468
% App. Total	32	32	36	0		16.7	78.9	4.4	0		13.5	78.8	7.7	0		1.4	76.4	22.1	0		
PHF	.500	.571	.643	.000	.568	.536	.845	.500	.000	.833	.583	.603	.500	.000	.684	.333	.764	.763	.000	.802	.796



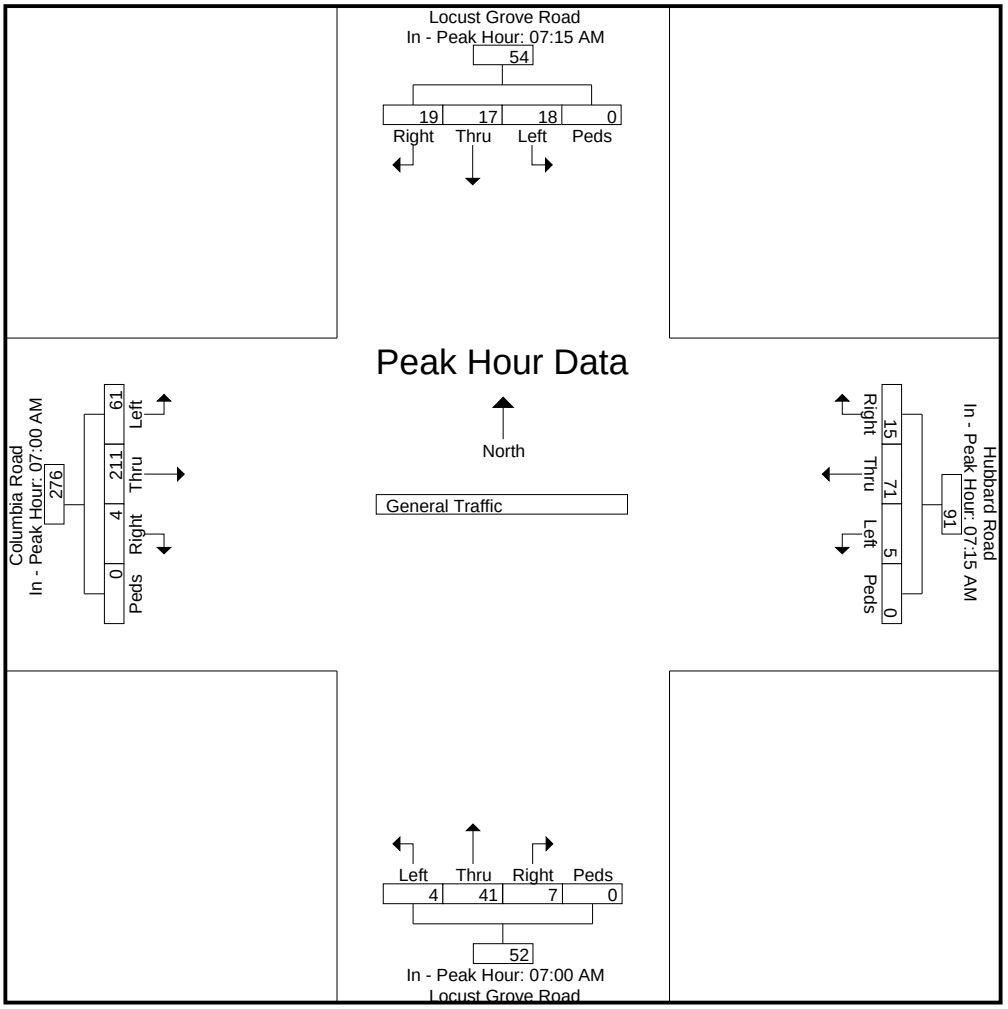
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Locust Grove / Columbia Rd
City, State: Ada County, Idaho
Control: All Stop

File Name : Locust Grove Rd & Columbia Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 4

	Locust Grove Road From North					Hubbard Road From East					Locust Grove Road From South					Columbia Road From West					
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 Each Approach Begins at:																					
	07:15 AM					07:15 AM					07:00 AM					07:00 AM					
+0 mins.	4	1	6	0	11	3	19	1	0	23	2	11	0	0	13	0	41	15	0	56	
+15 mins.	**8**	**7**	**7**	0	**22**	4	**21**	**2**	0	**27**	0	**17**	**2**	0	**19**	1	51	**20**	0	72	
+30 mins.	3	7	3	0	13	**7**	19	1	0	27	**3**	9	0	0	12	**3**	**69**	14	0	**86**	
+45 mins.	4	2	2	0	8	1	12	1	0	14	2	4	2	0	8	0	50	12	0	62	
Total Volume	19	17	18	0	54	15	71	5	0	91	7	41	4	0	52	4	211	61	0	276	
% App. Total	35.2	31.5	33.3	0		16.5	78	5.5	0		13.5	78.8	7.7	0		1.4	76.4	22.1	0		
PHF	.594	.607	.643	.000	.614	.536	.845	.625	.000	.843	.583	.603	.500	.000	.684	.333	.764	.763	.000	.802	



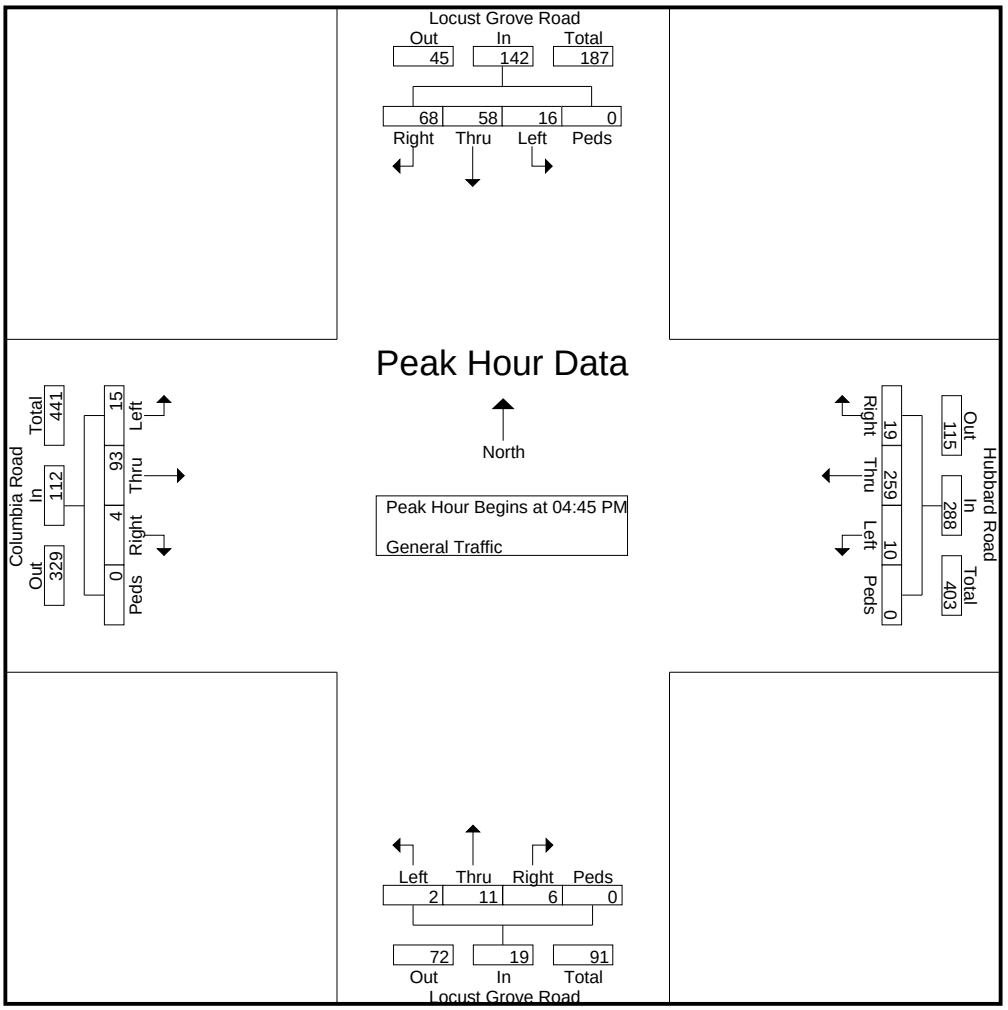
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Locust Grove / Columbia Rd
City, State: Ada County, Idaho
Control: All Stop

File Name : Locust Grove Rd & Columbia Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 5

	Locust Grove Road From North					Hubbard Road From East					Locust Grove Road From South					Columbia Road From West					
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 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	**20**	15	4	0	**39**	6	64	**4**	0	74	1	2	0	0	3	0	14	**5**	0	19	135
05:00 PM	18	15	1	0	34	4	66	0	0	70	**3**	**5**	**2**	0	**10**	1	22	3	0	26	140
05:15 PM	16	12	**6**	0	34	**7**	**68**	3	0	**78**	1	2	0	0	3	1	**29**	3	0	33	**148**
05:30 PM	14	**16**	5	0	35	2	61	3	0	66	1	2	0	0	3	**2**	28	4	0	**34**	138
Total Volume	68	58	16	0	142	19	259	10	0	288	6	11	2	0	19	4	93	15	0	112	561
% App. Total	47.9	40.8	11.3	0		6.6	89.9	3.5	0		31.6	57.9	10.5	0		3.6	83	13.4	0		
PHF	.850	.906	.667	.000	.910	.679	.952	.625	.000	.923	.500	.550	.250	.000	.475	.500	.802	.750	.000	.824	.948



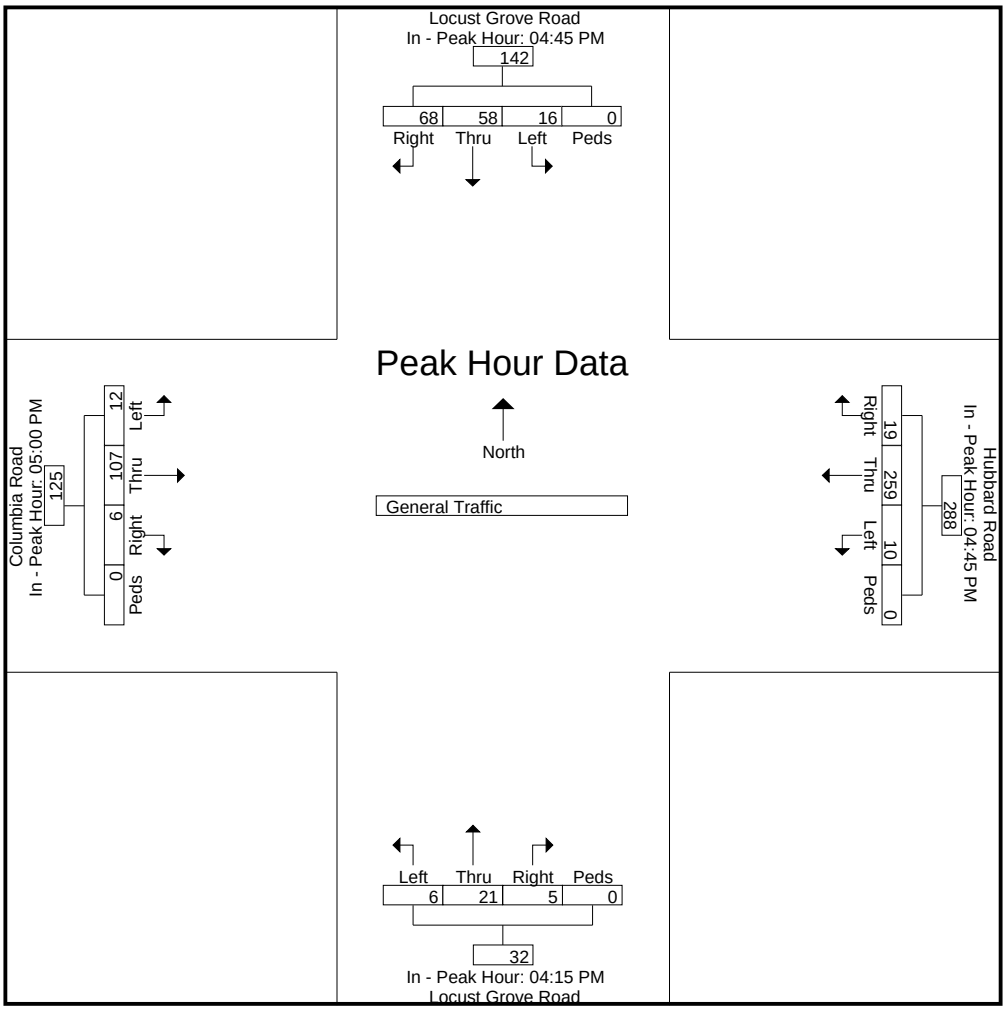
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Locust Grove / Columbia Rd
City, State: Ada County, Idaho
Control: All Stop

File Name : Locust Grove Rd & Columbia Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 6

	Locust Grove Road From North					Hubbard Road From East					Locust Grove Road From South					Columbia Road From West					
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 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	04:45 PM					04:45 PM					04:15 PM					05:00 PM					
+0 mins.	**20**	15	4	0	**39**	6	64	**4**	0	74	1	6	**4**	0	**11**	1	22	3	0	26	
+15 mins.	18	15	1	0	34	4	66	0	0	70	0	**8**	0	0	8	1	**29**	3	0	33	
+30 mins.	16	12	**6**	0	34	**7**	**68**	3	0	**78**	1	2	0	0	3	**2**	28	**4**	0	**34**	
+45 mins.	14	**16**	5	0	35	2	61	3	0	66	**3**	5	2	0	10	2	28	2	0	32	
Total Volume	68	58	16	0	142	19	259	10	0	288	5	21	6	0	32	6	107	12	0	125	
% App. Total	47.9	40.8	11.3	0		6.6	89.9	3.5	0		15.6	65.6	18.8	0		4.8	85.6	9.6	0		
PHF	.850	.906	.667	.000	.910	.679	.952	.625	.000	.923	.417	.656	.375	.000	.727	.750	.922	.750	.000	.919	



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Intersection: Locust Grove / Columbia Rd
City, State: Ada County, Idaho
Control: All Stop

File Name : Locust Grove Rd & Columbia Rd
Site Code : 00000000
Start Date : 8/7/2018
Page No : 7

Image 1

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Type: Volume / Direction
Tech: Judd / Klaren
Count: Axle Hits /2

Hubbard Rd b Meridian Rd & Hubbard Rd VOL
Date Start: 07-Aug-18
Date End: 08-Aug-18
Hubbard Rd between Meridian Rd & Locust
Ada County, Idaho

Start Time	07-Aug-18 Tue	WB	EB							Total
12:00 AM		*	*							*
12:15		*	*							*
12:30		*	*							*
12:45		*	*							*
01:00		*	*							*
01:15		*	*							*
01:30		*	*							*
01:45		*	*							*
02:00		*	*							*
02:15		*	*							*
02:30		*	*							*
02:45		*	*							*
03:00		0	0							0
03:15		0	0							0
03:30		0	0							0
03:45		0	0							0
04:00		0	1							1
04:15		0	0							0
04:30		0	0							0
04:45		0	0							0
05:00		0	4							4
05:15		0	0							0
05:30		1	0							1
05:45		0	0							0
06:00		0	2							2
06:15		0	3							3
06:30		1	**10**							11
06:45		2	**9**							11
07:00		2	**7**							9
07:15		3	**10**							13
07:30		6	9							15
07:45		3	8							11
08:00		2	8							10
08:15		2	0							2
08:30		12	6							18
08:45		1	1							2
09:00		4	6							10
09:15		**4**	10							14
09:30		**6**	6							**12**
09:45		**11**	2							**13**
10:00		**8**	3							**11**
10:15		4	14							**18**
10:30		6	2							8
10:45		8	6							14
11:00		7	5							12
11:15		4	6							10
11:30		6	3							9
11:45		8	4							12
Total		111	145							256
Percent		43.4%	56.6%							
Peak	-	09:15	06:30	-	-	-	-	-	-	09:30
Vol.	-	29	36	-	-	-	-	-	-	54
P.H.F.		0.659	0.900							0.750

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Type: Volume / Direction
Tech: Judd / Klaren
Count: Axle Hits /2

Hubbard Rd b Meridian Rd & Hubbard Rd VOL
Date Start: 07-Aug-18
Date End: 08-Aug-18
Hubbard Rd between Meridian Rd & Locust
Ada County, Idaho

Start Time	07-Aug-18 Tue	WB	EB							Total
12:00 PM		10	3							13
12:15		2	4							6
12:30		6	5							11
12:45		6	3							9
01:00		6	**6**							12
01:15		5	**10**							**15**
01:30		3	**8**							**11**
01:45		10	**4**							**14**
02:00		7	6							**13**
02:15		9	3							12
02:30		6	3							9
02:45		4	1							5
03:00		12	10							22
03:15		3	1							4
03:30		7	7							14
03:45		8	3							11
04:00		**5**	2							7
04:15		**5**	6							11
04:30		**10**	2							12
04:45		**16**	2							18
05:00		3	2							5
05:15		5	4							9
05:30		10	1							11
05:45		6	8							14
06:00		6	1							7
06:15		4	4							8
06:30		6	3							9
06:45		4	4							8
07:00		3	4							7
07:15		2	5							7
07:30		2	4							6
07:45		6	1							7
08:00		1	2							3
08:15		4	3							7
08:30		1	2							3
08:45		1	1							2
09:00		0	2							2
09:15		2	1							3
09:30		4	0							4
09:45		1	1							2
10:00		3	2							5
10:15		0	0							0
10:30		1	1							2
10:45		0	0							0
11:00		2	0							2
11:15		1	1							2
11:30		1	1							2
11:45		0	0							0
Total		219	147							366
Percent		59.8%	40.2%							
Peak	-	16:00	13:00	-	-	-	-	-	-	13:15
Vol.	-	36	28	-	-	-	-	-	-	53
P.H.F.		0.563	0.700							0.883

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Type: Volume / Direction
Tech: Judd / Klaren
Count: Axle Hits /2

Hubbard Rd b Meridian Rd & Hubbard Rd VOL
Date Start: 07-Aug-18
Date End: 08-Aug-18
Hubbard Rd between Meridian Rd & Locust
Ada County, Idaho

Start Time	08-Aug-18 Wed	WB	EB	Total
12:00 AM		**0**	0	**0**
12:15		**1**	0	**1**
12:30		**1**	**0**	**1**
12:45		**0**	**1**	**1**
01:00		0	**0**	0
01:15		0	**1**	1
01:30		0	0	0
01:45		0	1	1
02:00		1	0	1
02:15		0	0	0
02:30		0	0	0
02:45		0	0	0
03:00		*	*	*
03:15		*	*	*
03:30		*	*	*
03:45		*	*	*
04:00		*	*	*
04:15		*	*	*
04:30		*	*	*
04:45		*	*	*
05:00		*	*	*
05:15		*	*	*
05:30		*	*	*
05:45		*	*	*
06:00		*	*	*
06:15		*	*	*
06:30		*	*	*
06:45		*	*	*
07:00		*	*	*
07:15		*	*	*
07:30		*	*	*
07:45		*	*	*
08:00		*	*	*
08:15		*	*	*
08:30		*	*	*
08:45		*	*	*
09:00		*	*	*
09:15		*	*	*
09:30		*	*	*
09:45		*	*	*
10:00		*	*	*
10:15		*	*	*
10:30		*	*	*
10:45		*	*	*
11:00		*	*	*
11:15		*	*	*
11:30		*	*	*
11:45		*	*	*
Total		3	3	6
Percent		50.0%	50.0%	
Peak	-	12:00	00:30	12:00
Vol.	-	2	2	3
P.H.F.		0.500	0.500	0.750
Total		333	295	628
Percent		53.0%	47.0%	

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Type: Volume / Direction
Tech: Judd / Klaren
Count: Axle Hits / 2

Locust Grove Rd between Columbia & Hubbard VOL
Date Start: 07-Aug-18
Date End: 08-Aug-18
Locust Grove between Columbia & Hubbard
Ada County, Idaho

Start Time	07-Aug-18 Tue	SB	NB							Total
12:00 AM		*	*							*
12:15		*	*							*
12:30		*	*							*
12:45		*	*							*
01:00		*	*							*
01:15		*	*							*
01:30		*	*							*
01:45		*	*							*
02:00		*	*							*
02:15		*	*							*
02:30		*	*							*
02:45		*	*							*
03:00		0	0							0
03:15		1	0							1
03:30		0	0							0
03:45		0	0							0
04:00		0	1							1
04:15		0	0							0
04:30		0	0							0
04:45		0	0							0
05:00		0	3							3
05:15		2	0							2
05:30		1	5							6
05:45		0	4							4
06:00		0	1							1
06:15		2	0							2
06:30		0	9							9
06:45		6	**15**							21
07:00		1	**13**							14
07:15		4	**19**							**23**
07:30		**12**	**12**							**24**
07:45		**10**	8							**18**
08:00		**6**	12							**18**
08:15		**6**	16							22
08:30		8	9							17
08:45		4	6							10
09:00		5	6							11
09:15		5	9							14
09:30		7	8							15
09:45		9	6							15
10:00		10	4							14
10:15		4	10							14
10:30		10	8							18
10:45		7	9							16
11:00		3	3							6
11:15		6	9							15
11:30		6	6							12
11:45		10	8							18
Total		145	219							364
Percent		39.8%	60.2%							
Peak	-	07:30	06:45	-	-	-	-	-	-	07:15
Vol.	-	34	59	-	-	-	-	-	-	83
P.H.F.		0.708	0.776							0.865

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

Study: WHPA0002
Type: Volume / Direction
Tech: Judd / Klaren
Count: Axle Hits / 2

Locust Grove Rd between Columbia & Hubbard VOL
Date Start: 07-Aug-18
Date End: 08-Aug-18
Locust Grove between Columbia & Hubbard
Ada County, Idaho

Start Time	07-Aug-18 Tue	SB	NB							Total
12:00 PM		5	5							10
12:15		10	4							14
12:30		5	8							13
12:45		8	6							14
01:00		11	4							15
01:15		6	4							10
01:30		5	5							10
01:45		8	2							10
02:00		13	6							19
02:15		8	5							13
02:30		14	4							18
02:45		9	4							13
03:00		12	10							22
03:15		7	6							13
03:30		12	10							22
03:45		14	8							22
04:00		21	2							23
04:15		16	**14**							**30**
04:30		16	**12**							**28**
04:45		**20**	**5**							**25**
05:00		**18**	**12**							**30**
05:15		**17**	4							21
05:30		**19**	5							24
05:45		19	4							23
06:00		15	8							23
06:15		9	4							13
06:30		14	4							18
06:45		7	6							13
07:00		6	5							11
07:15		10	4							14
07:30		9	5							14
07:45		4	2							6
08:00		1	3							4
08:15		6	0							6
08:30		6	2							8
08:45		5	3							8
09:00		8	3							11
09:15		8	2							10
09:30		4	1							5
09:45		6	1							7
10:00		4	5							9
10:15		3	0							3
10:30		0	2							2
10:45		4	0							4
11:00		2	0							2
11:15		1	0							1
11:30		2	0							2
11:45		0	1							1
Total		427	210							637
Percent		67.0%	33.0%							
Peak	-	16:45	16:15	-	-	-	-	-	-	16:15
Vol.	-	74	43	-	-	-	-	-	-	113
P.H.F.		0.925	0.768							0.942

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 431-2993

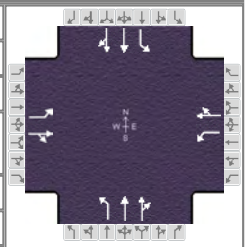
Study: WHPA0002
Type: Volume / Direction
Tech: Judd / Klaren
Count: Axle Hits / 2

Locust Grove Rd between Columbia & Hubbard VOL
Date Start: 07-Aug-18
Date End: 08-Aug-18
Locust Grove between Columbia & Hubbard
Ada County, Idaho

Start Time	08-Aug-18 Wed	SB	NB							Total
12:00 AM		1	0							1
12:15		**2**	0							**2**
12:30		**1**	0							**1**
12:45		**0**	**0**							**0**
01:00		**2**	**0**							**2**
01:15		0	**0**							0
01:30		0	**1**							1
01:45		0	0							0
02:00		0	0							0
02:15		1	0							1
02:30		0	0							0
02:45		0	0							0
03:00		*	*							*
03:15		*	*							*
03:30		*	*							*
03:45		*	*							*
04:00		*	*							*
04:15		*	*							*
04:30		*	*							*
04:45		*	*							*
05:00		*	*							*
05:15		*	*							*
05:30		*	*							*
05:45		*	*							*
06:00		*	*							*
06:15		*	*							*
06:30		*	*							*
06:45		*	*							*
07:00		*	*							*
07:15		*	*							*
07:30		*	*							*
07:45		*	*							*
08:00		*	*							*
08:15		*	*							*
08:30		*	*							*
08:45		*	*							*
09:00		*	*							*
09:15		*	*							*
09:30		*	*							*
09:45		*	*							*
10:00		*	*							*
10:15		*	*							*
10:30		*	*							*
10:45		*	*							*
11:00		*	*							*
11:15		*	*							*
11:30		*	*							*
11:45		*	*							*
Total		7	1							8
Percent		87.5%	12.5%							
Peak	-	00:15	00:45	-	-	-	-	-	-	00:15
Vol.	-	5	1	-	-	-	-	-	-	5
P.H.F.		0.625	0.250							0.625
Total		579	430							1009
Percent		57.4%	42.6%							

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	WH Pacific			Duration, h	0.25
Analyst	M Olson	Analysis Date	9/19/2018	Area Type	Other
Jurisdiction	ADA County	Time Period	AM Weekday Peak	PHF	0.90
Urban Street	Meridian Rd (SR 69)	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	Meridian at Hubbard	File Name	A-Meridian_Hubb AM 2018 Existing.xus		
Project Description	A - 2018 AM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	133	23	14	7	4	10	9	874	4	14	324	42

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.5	0.6	66.8	1.2	5.0	5.0	1	2	3	4		
Yellow	4.0	0.0	4.0	4.0	4.0	4.0	5	6	7	8		
Red	0.0	0.0	0.0	0.0	0.0	0.0						

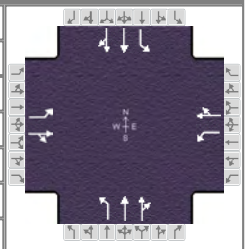
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	14.1	18.0	5.2	9.0	5.5	70.8	6.1	71.4
Change Period, ($Y+R_c$), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	2.9	0.0	2.9	0.0
Queue Clearance Time (g_s), s	10.2	4.1	2.4	2.9	2.6		2.9	
Green Extension Time (g_e), s	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Phase Call Probability	0.98	1.00	0.19	0.83	0.24		0.35	
Max Out Probability	0.05	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	148	41		8	16		10	488	487	16	206	201
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1737		1767	1644		1682	1767	1764	1711	1796	1724
Queue Service Time (g_s), s	8.2	2.1		0.4	0.9		0.6	12.7	12.7	0.9	4.2	4.3
Cycle Queue Clearance Time (g_c), s	8.2	2.1		0.4	0.9		0.6	12.7	12.7	0.9	4.2	4.3
Green Ratio (*g/C*)	0.10	0.14		0.01	0.05		0.01	0.67	0.67	0.02	0.67	0.67
Capacity (*c*), veh/h	179	243		21	82		24	1179	1177	36	1211	1162
Volume-to-Capacity Ratio (*X*)	0.824	0.169		0.377	0.189		0.408	0.414	0.414	0.432	0.170	0.173
Back of Queue (*Q*), ft/ln (50 th percentile)	97	22.6		5.5	9.6		7	104.3	104.1	10.4	33.7	32.9
Back of Queue (*Q*), veh/ln (50 th percentile)	3.8	0.9		0.2	0.4		0.3	3.9	3.9	0.4	1.3	1.2
Queue Storage Ratio (*RQ*) (50 th percentile)	1.62	0.00		0.06	0.00		0.05	0.00	0.00	0.06	0.00	0.00
Uniform Delay (d_1), s/veh	44.1	37.9		49.1	45.6		48.8	7.6	7.6	48.4	6.0	6.0
Incremental Delay (d_2), s/veh	5.4	0.1		4.2	0.4		4.0	1.1	1.1	3.0	0.3	0.3
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	49.4	38.0		53.2	46.0		52.9	8.7	8.7	51.4	6.3	6.3
Level of Service (LOS)	D	D		D	D		D	A	A	D	A	A
Approach Delay, s/veh / LOS	46.9	D		48.4	D		9.2	A		8.0	A	
Intersection Delay, s/veh / LOS	13.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.31	B	1.87	B	1.86	B
Bicycle LOS Score / LOS	0.80	A	0.53	A	1.30	A	0.84	A

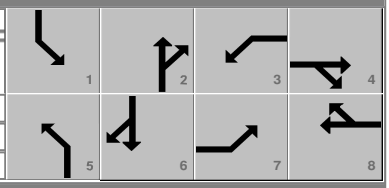
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	WH Pacific			Duration, h	0.25
Analyst	M Olson	Analysis Date	9/19/2018	Area Type	Other
Jurisdiction	ADA County	Time Period	PM Peak	PHF	0.90
Urban Street	Meridian Rd (SR 69)	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	Meridian at Hubbard	File Name	B-Meridian_Hubb PM 2018 Existing.xus		
Project Description	B-2018 PM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	67	9	28	9	9	29	29	485	8	15	1047	273

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.2	1.3	69.5	1.5	4.0	5.6
Yellow	4.0	0.0	4.0	4.0	0.0	4.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	9.4	13.5	5.5	9.6	7.5	74.8	6.2	73.5
Change Period, ($Y+R_c$), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	2.9	0.0	2.9	0.0
Queue Clearance Time (g_s), s	6.2	4.3	2.6	4.5	3.9		3.0	
Green Extension Time (g_e), s	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.0
Phase Call Probability	0.87	0.99	0.24	0.93	0.59		0.37	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	74	41		10	42		32	275	273	17	754	713
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1633		1767	1631		1682	1767	1756	1711	1796	1669
Queue Service Time (g_s), s	4.2	2.3		0.6	2.5		1.9	5.4	5.4	1.0	22.1	22.8
Cycle Queue Clearance Time (g_c), s	4.2	2.3		0.6	2.5		1.9	5.4	5.4	1.0	22.1	22.8
Green Ratio (*g/C*)	0.05	0.10		0.01	0.06		0.04	0.71	0.71	0.02	0.69	0.69
Capacity (*c*), veh/h	96	156		26	91		60	1251	1243	38	1248	1159
Volume-to-Capacity Ratio (*X*)	0.775	0.264		0.389	0.466		0.540	0.220	0.220	0.438	0.604	0.615
Back of Queue (*Q*), ft/ln (50 th percentile)	49.4	24.1		6.9	26.6		21.3	39.5	39.6	11.1	174.1	168.3
Back of Queue (*Q*), veh/ln (50 th percentile)	1.9	0.9		0.3	1.0		0.8	1.5	1.5	0.4	6.6	6.4
Queue Storage Ratio (*RQ*) (50 th percentile)	0.82	0.00		0.08	0.00		0.14	0.00	0.00	0.07	0.00	0.00
Uniform Delay (d_1), s/veh	46.7	42.0		48.8	45.8		47.4	5.1	5.1	48.3	8.0	8.1
Incremental Delay (d_2), s/veh	4.9	0.3		3.5	1.4		2.8	0.4	0.4	2.9	2.2	2.4
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	51.6	42.3		52.4	47.2		50.2	5.5	5.5	51.2	10.2	10.6
Level of Service (LOS)	D	D		D	D		D	A	A	D	B	B
Approach Delay, s/veh / LOS	48.3	D		48.2	D		7.9	A		10.9	B	
Intersection Delay, s/veh / LOS	12.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.31	B	1.86	B	1.86	B
Bicycle LOS Score / LOS	0.68	A	0.57	A	0.97	A	1.71	B

HCS7 Two-Way Stop-Control Report

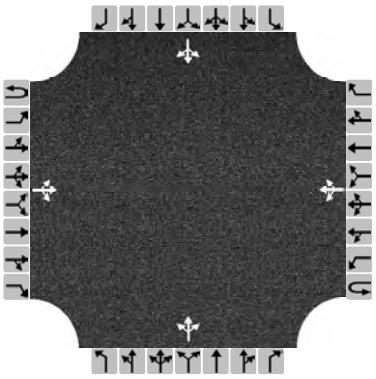
General Information

Analyst	Jerry Liu
Agency/Co.	WHPacific
Date Performed	9/15/2018
Analysis Year	2018
Time Analyzed	2018 Existing AM
Intersection Orientation	East-West
Project Description	Trilogy

Site Information

Intersection	Locust Grove and Hubbard
Jurisdiction	
East/West Street	Hubbard R
North/South Street	Locust Grove
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume, V (veh/h)		14	17	4		0	9	2		0	38	1		1	11	5
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		16				0					43				19	
Capacity, c (veh/h)		1598				1584					819				882	
v/c Ratio		0.01				0.00					0.05				0.02	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.2				0.1	
Control Delay (s/veh)		7.3				7.3					9.6				9.2	
Level of Service, LOS		A				A					A				A	
Approach Delay (s/veh)	3.0				0.0				9.6				9.2			
Approach LOS									A				A			

HCS7 Two-Way Stop-Control Report

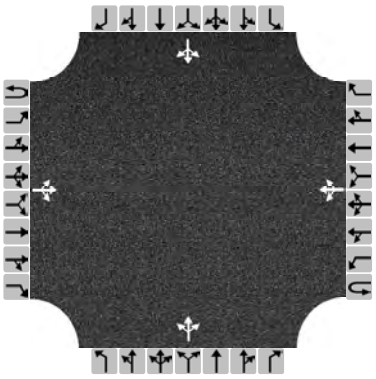
General Information

Analyst	Jerry Liu
Agency/Co.	WHPacific
Date Performed	9/15/2018
Analysis Year	2018
Time Analyzed	2018 Existing PM
Intersection Orientation	East-West
Project Description	Trilogy

Site Information

Intersection	Locust Grove and Hubbard
Jurisdiction	
East/West Street	Hubbard R
North/South Street	Locust Grove
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume, V (veh/h)		2	9	4		8	11	0		2	16	3		0	64	7
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

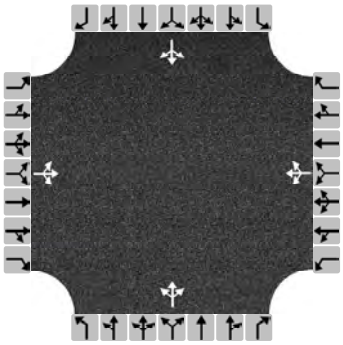
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2				9					23				79	
Capacity, c (veh/h)		1598				1596					861				854	
v/c Ratio		0.00				0.01					0.03				0.09	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.1				0.3	
Control Delay (s/veh)		7.3				7.3					9.3				9.6	
Level of Service, LOS		A				A					A				A	
Approach Delay (s/veh)	0.9				3.1				9.3				9.6			
Approach LOS									A				A			

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	Jerry Liu	Intersection	Locust Grove and Columbia
Agency/Co.	WHPacific	Jurisdiction	
Date Performed	9/15/2018	East/West Street	Columbia Rd
Analysis Year	2018	North/South Street	Locust Grove Rd
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.90
Time Analyzed	Existing AM		
Project Description	Trilogy		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	61	211	4	4	71	15	4	41	7	18	16	16
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	307			100			58			56		
Percent Heavy Vehicles	3			3			3			3		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.273			0.089			0.051			0.049		
Final Departure Headway, hd (s)	4.39			4.49			4.90			4.85		
Final Degree of Utilization, x	0.374			0.125			0.079			0.075		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	2.39			2.49			2.90			2.85		

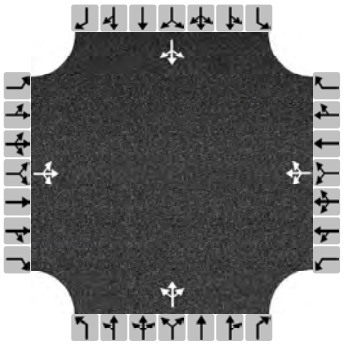
Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	307			100			58			56		
Capacity	820			803			735			743		
95% Queue Length, Q_{95} (veh)	1.7			0.4			0.3			0.2		
Control Delay (s/veh)	10.0			8.1			8.3			8.2		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh)	10.0			8.1			8.3			8.2		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	9.3						A					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	Jerry Liu	Intersection	Locust Grove and Columbia
Agency/Co.	WHPacific	Jurisdiction	
Date Performed	9/15/2018	East/West Street	Columbia Rd
Analysis Year	2018	North/South Street	Locust Grove Rd
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.90
Time Analyzed	Existing PM		
Project Description	Trilogy		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	15	93	4	10	259	19	2	11	6	16	58	68
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	124			320			21			158		
Percent Heavy Vehicles	3			3			3			3		

Departure Headway and Service Time

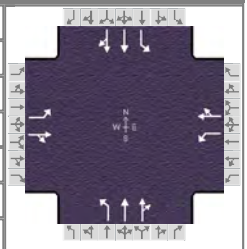
Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.111			0.284			0.019			0.140		
Final Departure Headway, hd (s)	4.78			4.53			5.07			4.77		
Final Degree of Utilization, x	0.165			0.402			0.030			0.209		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	2.78			2.53			3.07			2.77		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	124			320			21			158		
Capacity	752			795			711			755		
95% Queue Length, Q_{95} (veh)	0.6			2.0			0.1			0.8		
Control Delay (s/veh)	8.7			10.5			8.2			9.0		
Level of Service, LOS	A			B			A			A		
Approach Delay (s/veh)	8.7			10.5			8.2			9.0		
Approach LOS	A			B			A			A		
Intersection Delay, s/veh | LOS	9.7						A					

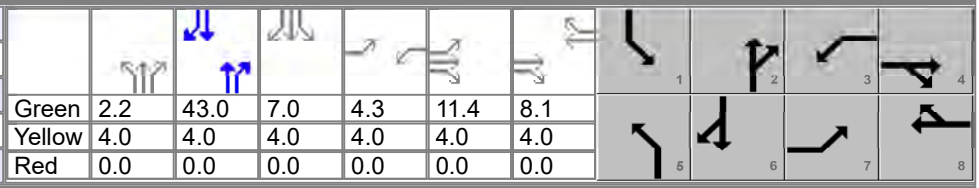
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	WH Pacific			Duration, h	0.25
Analyst	M Olson	Analysis Date	Sep 19, 2018	Area Type	Other
Jurisdiction	ADA County	Time Period	AM	PHF	0.90
Urban Street	Meridian Rd (SR 69)	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	Meridian at Hubbard	File Name	C-Meridian_Hubb AM 2025 No-Build.xus		
Project Description	C-2025 AM - No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	280	140	30	40	25	60	15	1530	25	85	360	45

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.2	43.0	7.0	4.3	11.4	8.1
Yellow	4.0	4.0	4.0	4.0	4.0	4.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

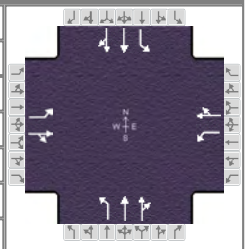
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	23.7	27.5	8.3	12.1	6.2	53.3	11.0	58.0
Change Period, ($Y+R_c$), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s	3.0	3.0	3.0	3.0	2.9	0.0	2.9	0.0
Queue Clearance Time (g_s), s	19.2	11.0	4.5	7.6	3.0		7.4	
Green Extension Time (g_e), s	0.5	0.5	0.1	0.5	0.0	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	0.71	1.00	0.37		0.93	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	311	189		44	94		17	865	863	94	228	222
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1798		1767	1646		1682	1767	1756	1711	1796	1726
Queue Service Time (g_s), s	17.2	9.0		2.5	5.6		1.0	48.7	49.0	5.4	6.7	6.8
Cycle Queue Clearance Time (g_c), s	17.2	9.0		2.5	5.6		1.0	48.7	49.0	5.4	6.7	6.8
Green Ratio (*g/C*)	0.20	0.23		0.04	0.08		0.02	0.49	0.49	0.07	0.54	0.54
Capacity (*c*), veh/h	348	423		75	133		37	870	865	119	970	933
Volume-to-Capacity Ratio (*X*)	0.895	0.447		0.591	0.710		0.445	0.994	0.997	0.792	0.235	0.238
Back of Queue (*Q*), ft/ln (50 th percentile)	189.4	96.5		28.4	58.9		11.3	647	651.9	75.3	64.5	63
Back of Queue (*Q*), veh/ln (50 th percentile)	7.4	3.8		1.1	2.3		0.4	24.1	24.3	2.9	2.4	2.4
Queue Storage Ratio (*RQ*) (50 th percentile)	3.16	0.00		0.32	0.00		0.08	0.00	0.00	0.46	0.00	0.00
Uniform Delay (d_1), s/veh	39.2	32.7		47.0	44.8		48.3	25.2	25.3	45.8	12.1	12.1
Incremental Delay (d_2), s/veh	3.3	0.3		2.7	2.6		3.1	29.0	29.9	20.3	0.6	0.6
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	42.5	33.0		49.7	47.4		51.3	54.2	55.2	66.1	12.7	12.7
Level of Service (LOS)	D	C		D	D		D	D	E	E	B	B
Approach Delay, s/veh / LOS	38.9	D		48.2	D		54.7	D		22.0	C	
Intersection Delay, s/veh / LOS	45.6						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.31	B	1.95	B	1.89	B
Bicycle LOS Score / LOS	1.31	A	0.72	A	1.93	B	0.94	A

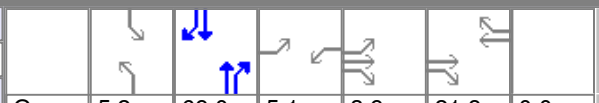
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	WH Pacific			Duration, h	0.25
Analyst	M Olson	Analysis Date	Sep 19, 2018	Area Type	Other
Jurisdiction	ADA County	Time Period	PM	PHF	0.90
Urban Street	Meridian Rd (SR 69)	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	Meridian at Hubbard	File Name	D-Meridian_Hubb PM 2025 No-Build.xus		
Project Description	2025 PM - No Build				

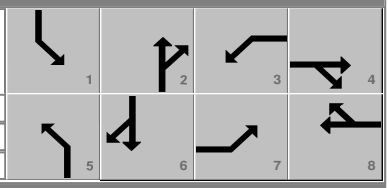


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	140	50	55	50	60	170	50	850	50	50	1170	305

Signal Information			
Cycle, s	125.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	5.2	69.0	5.1	3.9	21.8	0.0						
Yellow	4.0	4.0	4.0	4.0	4.0	0.0						
Red	0.0	0.0	0.0	0.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	17.0	33.7	9.1	25.8	9.3	73.0	9.2	72.9
Change Period, ($Y+R_c$), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s	3.0	3.2	3.0	3.2	2.9	0.0	2.9	0.0
Queue Clearance Time (g_s), s	12.8	9.0	5.9	21.1	6.1		6.0	
Green Extension Time (g_e), s	0.3	0.7	0.1	0.7	0.1	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	0.85	1.00	0.85		0.85	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	156	117		56	256		56	505	495	56	836	803
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1696		1767	1638		1682	1767	1732	1711	1796	1669
Queue Service Time (g_s), s	10.8	7.0		3.9	19.1		4.1	22.4	22.4	4.0	48.8	52.0
Cycle Queue Clearance Time (g_c), s	10.8	7.0		3.9	19.1		4.1	22.4	22.4	4.0	48.8	52.0
Green Ratio (*g/C*)	0.10	0.24		0.04	0.17		0.04	0.55	0.55	0.04	0.55	0.55
Capacity (*c*), veh/h	184	403		73	286		71	975	956	71	990	921
Volume-to-Capacity Ratio (*X*)	0.846	0.290		0.766	0.895		0.783	0.518	0.518	0.778	0.844	0.873
Back of Queue (*Q*), ft/ln (50 th percentile)	125.4	74		46.8	202.9		48.6	233.4	229.1	47.8	540.2	548.6
Back of Queue (*Q*), veh/ln (50 th percentile)	4.9	2.9		1.8	7.9		1.8	8.7	8.5	1.8	20.5	20.8
Queue Storage Ratio (*RQ*) (50 th percentile)	2.09	0.00		0.53	0.00		0.32	0.00	0.00	0.29	0.00	0.00
Uniform Delay (d_1), s/veh	55.0	39.0		59.3	50.5		59.3	17.6	17.6	59.3	23.5	24.2
Incremental Delay (d_2), s/veh	4.1	0.1		6.2	4.0		6.9	2.0	2.0	6.7	8.7	11.2
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	59.1	39.2		65.5	54.5		66.2	19.5	19.6	66.0	32.3	35.4
Level of Service (LOS)	E	D		E	D		E	B	B	E	C	D
Approach Delay, s/veh / LOS	50.5	D		56.4	E		22.0	C		34.9	C	
Intersection Delay, s/veh / LOS	34.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.31	B	1.90	B	1.90	B
Bicycle LOS Score / LOS	0.94	A	1.00	A	1.36	A	1.89	B

HCS7 Two-Way Stop-Control Report

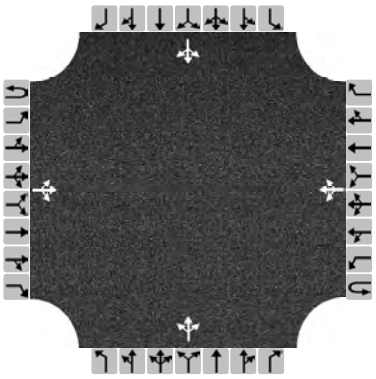
General Information

Analyst	Jerry Liu
Agency/Co.	WHPacific
Date Performed	9/15/2018
Analysis Year	2025
Time Analyzed	2025 NoBuild AM
Intersection Orientation	East-West
Project Description	Trilogy

Site Information

Intersection	Locust Grove and Hubbard
Jurisdiction	
East/West Street	Hubbard R
North/South Street	Locust Grove
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume, V (veh/h)		100	125	25		10	100	10		10	290	5		5	40	15
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		111				11					339				67	
Capacity, c (veh/h)		1457				1403					420				387	
v/c Ratio		0.08				0.01					0.81				0.17	
95% Queue Length, Q_{95} (veh)		0.2				0.0					7.3				0.6	
Control Delay (s/veh)		7.7				7.6					40.9				16.2	
Level of Service, LOS		A				A					E				C	
Approach Delay (s/veh)	3.5				0.7				40.9				16.2			
Approach LOS									E				C			

HCS7 Two-Way Stop-Control Report

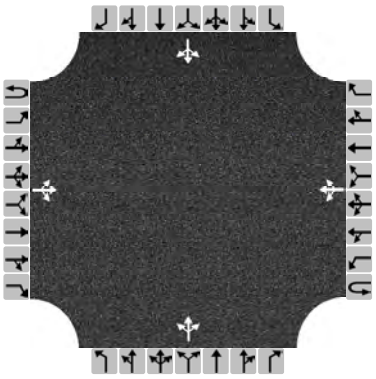
General Information

Analyst	Jerry Liu
Agency/Co.	WHPacific
Date Performed	9/15/2018
Analysis Year	2025
Time Analyzed	2025 NoBuild PM
Intersection Orientation	East-West
Project Description	Trilogy

Site Information

Intersection	Locust Grove and Hubbard
Jurisdiction	
East/West Street	Hubbard R
North/South Street	Locust Grove
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume, V (veh/h)		25	100	25		70	240	10		20	100	10		5	235	20
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

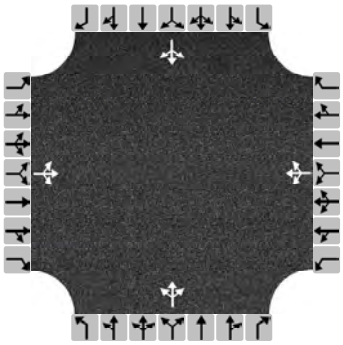
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		28				78					144				289	
Capacity, c (veh/h)		1278				1437					295				378	
v/c Ratio		0.02				0.05					0.49				0.77	
95% Queue Length, Q_{95} (veh)		0.1				0.2					2.5				6.3	
Control Delay (s/veh)		7.9				7.6					28.2				39.7	
Level of Service, LOS		A				A					D				E	
Approach Delay (s/veh)	1.5				2.1				28.2				39.7			
Approach LOS									D				E			

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	Jerry Liu	Intersection	Locust Grove and Columbia
Agency/Co.	WHPacific	Jurisdiction	
Date Performed	9/15/2018	East/West Street	Columbia Rd
Analysis Year	2025	North/South Street	Locust Grove Rd
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.90
Time Analyzed	2025 NoBuild AM		
Project Description	Trilogy		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	140	510	15	15	150	30	30	335	35	45	60	40
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	739			217			444			161		
Percent Heavy Vehicles	3			3			3			3		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.657			0.193			0.395			0.143		
Final Departure Headway, hd (s)	6.86			7.52			6.97			7.83		
Final Degree of Utilization, x	1.408			0.453			0.861			0.350		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	4.86			5.52			4.97			5.83		

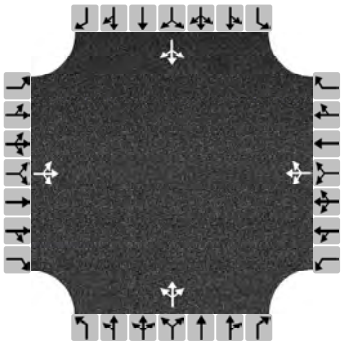
Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	739			217			444			161		
Capacity	525			479			516			460		
95% Queue Length, Q_{95} (veh)	34.7			2.3			9.2			1.6		
Control Delay (s/veh)	214.5			16.6			39.4			15.0		
Level of Service, LOS	F			C			E			B		
Approach Delay (s/veh)	214.5			16.6			39.4			15.0		
Approach LOS	F			C			E			B		
Intersection Delay, s/veh | LOS	116.6						F					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	Jerry Liu	Intersection	Locust Grove and Columbia
Agency/Co.	WHPacific	Jurisdiction	
Date Performed	9/15/2018	East/West Street	Columbia Rd
Analysis Year	2025	North/South Street	Locust Grove Rd
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.90
Time Analyzed	2025 NoBuild PM		
Project Description	Trilogy		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	35	225	15	35	560	40	15	90	30	40	210	170
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	306			706			150			467		
Percent Heavy Vehicles	3			3			3			3		

Departure Headway and Service Time

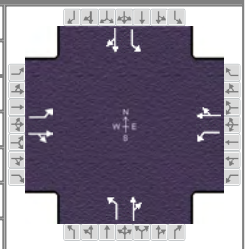
Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.272			0.627			0.133			0.415		
Final Departure Headway, hd (s)	7.76			7.29			8.45			7.13		
Final Degree of Utilization, x	0.659			1.429			0.352			0.924		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	5.76			5.29			6.45			5.13		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	306			706			150			467		
Capacity	464			494			426			505		
95% Queue Length, Q_{95} (veh)	4.7			34.2			1.6			11.1		
Control Delay (s/veh)	24.5			225.2			16.0			50.2		
Level of Service, LOS	C			F			C			F		
Approach Delay (s/veh)	24.5			225.2			16.0			50.2		
Approach LOS	C			F			C			F		
Intersection Delay, s/veh | LOS	118.1						F					

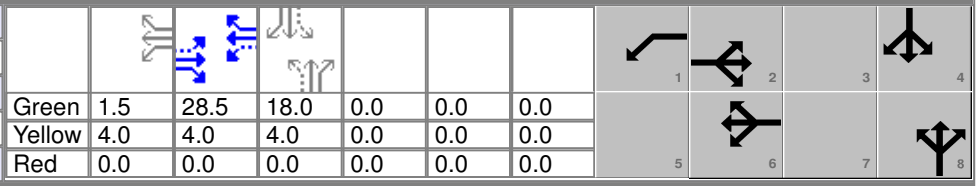
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	WH Pacific			Duration, h	0.25
Analyst	Olson	Analysis Date	9/26/2018	Area Type	Other
Jurisdiction	ADA County	Time Period	AM	PHF	0.90
Urban Street	E Columbia Rd	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	Columbia and Locust Gr…	File Name	I-Columb_LocustGrov AM 2025 NoBuild.xus		
Project Description	2025 No Build AM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	140	510	15	15	150	30	30	335	35	45	60	40

Signal Information			
Cycle, s	60.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	1.5	28.5	18.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

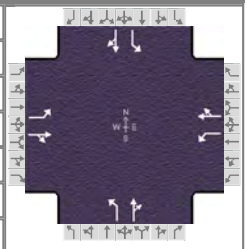
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		4
Case Number		6.3	1.0	4.0		6.0		6.0
Phase Duration, s		32.5	5.5	38.0		22.0		22.0
Change Period, ($Y+R_c$), s		4.0	4.0	4.0		4.0		4.0
Max Allow Headway (*MAH*), s		0.0	3.0	0.0		3.0		3.0
Queue Clearance Time (g_s), s			2.3			14.2		17.0
Green Extension Time (g_e), s		0.0	0.0	0.0		1.1		1.0
Phase Call Probability			0.24			1.00		1.00
Max Out Probability			0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	156	583		17	200		33	411		50	111	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1173	1846		1767	1801		1272	1824		967	1731	
Queue Service Time (g_s), s	4.8	14.6		0.3	3.3		1.2	12.2		2.9	2.9	
Cycle Queue Clearance Time (g_c), s	5.0	14.6		0.3	3.3		3.9	12.2		15.0	2.9	
Green Ratio (*g/C*)	0.48	0.48		0.53	0.57		0.30	0.30		0.30	0.30	
Capacity (*c*), veh/h	675	876		351	1019		445	549		217	521	
Volume-to-Capacity Ratio (*X*)	0.231	0.666		0.047	0.196		0.075	0.748		0.230	0.213	
Back of Queue (*Q*), ft/ln (50 th percentile)	26.8	133.9		1.8	23		7.6	110		15.4	24.2	
Back of Queue (*Q*), veh/ln (50 th percentile)	1.0	5.2		0.1	0.9		0.3	4.3		0.6	0.9	
Queue Storage Ratio (*RQ*) (50 th percentile)	0.27	0.00		0.02	0.00		0.08	0.00		0.15	0.00	
Uniform Delay (d_1), s/veh	9.6	12.1		9.0	6.4		17.1	18.9		25.6	15.7	
Incremental Delay (d_2), s/veh	0.8	4.0		0.0	0.4		0.0	0.8		0.2	0.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	10.4	16.1		9.0	6.8		17.1	19.7		25.8	15.7	
Level of Service (LOS)	B	B		A	A		B	B		C	B	
Approach Delay, s/veh / LOS	14.9	B		7.0	A		19.5	B		18.9	B	
Intersection Delay, s/veh / LOS	15.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.88	B	1.87	B	1.91	B	1.91	B
Bicycle LOS Score / LOS	1.71	B	0.85	A	1.22	A	0.75	A

HCS7 Signalized Intersection Results Summary

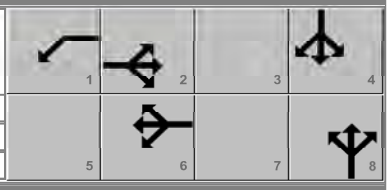
General Information				Intersection Information	
Agency	WH Pacific			Duration, h	0.25
Analyst	Olson	Analysis Date	9/26/2018	Area Type	Other
Jurisdiction	ADA County	Time Period	AM	PHF	0.90
Urban Street	E Columbia Rd	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	Columbia and Locust Gr…	File Name	J-Columb_LocustGrove PM 2025 NoBuild.xus		
Project Description	2025 No Build PM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	35	225	15	35	560	40	15	90	30	40	210	170

Signal Information			
Cycle, s	60.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.9	27.3	17.8	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	0.0	0.0	0.0	0.0	0.0	0.0						



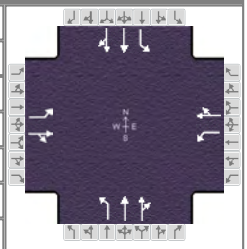
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		4
Case Number		6.3	1.0	4.0		6.0		6.0
Phase Duration, s		31.3	6.9	38.2		21.8		21.8
Change Period, ($Y+R_c$), s		4.0	4.0	4.0		4.0		4.0
Max Allow Headway (*MAH*), s		0.0	3.0	0.0		3.1		3.1
Queue Clearance Time (g_s), s			2.6			16.7		15.7
Green Extension Time (g_e), s		0.0	0.0	0.0		1.1		1.1
Phase Call Probability			0.48			1.00		1.00
Max Out Probability			0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	39	267		39	667		17	133		44	422	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	764	1835		1767	1834		957	1776		1246	1717	
Queue Service Time (g_s), s	2.2	5.6		0.6	14.8		1.0	3.4		1.7	13.7	
Cycle Queue Clearance Time (g_c), s	10.2	5.6		0.6	14.8		14.7	3.4		5.1	13.7	
Green Ratio (*g/C*)	0.46	0.46		0.54	0.57		0.30	0.30		0.30	0.30	
Capacity (*c*), veh/h	365	834		603	1043		187	529		421	511	
Volume-to-Capacity Ratio (*X*)	0.106	0.320		0.065	0.639		0.089	0.252		0.106	0.826	
Back of Queue (*Q*), ft/ln (50 th percentile)	9.4	48.5		4.1	113.8		5.2	29.6		10.6	118.6	
Back of Queue (*Q*), veh/ln (50 th percentile)	0.4	1.9		0.2	4.4		0.2	1.2		0.4	4.6	
Queue Storage Ratio (*RQ*) (50 th percentile)	0.09	0.00		0.04	0.00		0.05	0.00		0.11	0.00	
Uniform Delay (d_1), s/veh	14.6	10.4		7.1	8.8		26.4	16.0		17.9	19.6	
Incremental Delay (d_2), s/veh	0.6	1.0		0.0	3.0		0.1	0.1		0.0	1.3	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	15.1	11.5		7.1	11.8		26.5	16.1		17.9	20.9	
Level of Service (LOS)	B	B		A	B		C	B		B	C	
Approach Delay, s/veh / LOS	11.9	B		11.5	B		17.2	B		20.6	C	
Intersection Delay, s/veh / LOS	14.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.89	B	1.87	B	1.91	B	1.91	B
Bicycle LOS Score / LOS	0.99	A	1.65	B	0.74	A	1.26	A

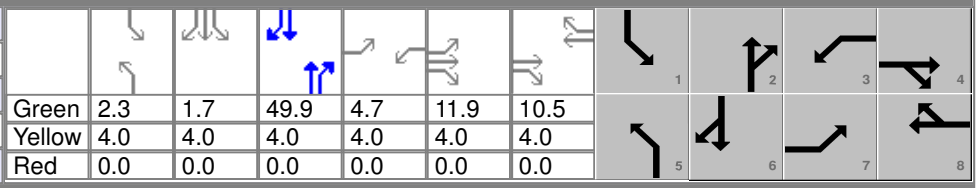
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	WH Pacific			Duration, h	0.25
Analyst	M Olson	Analysis Date	Sep 19, 2018	Area Type	Other
Jurisdiction	ADA County	Time Period	AM	PHF	0.90
Urban Street	Meridian Rd (SR 69)	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	Meridian at Hubbard	File Name	E-Meridian_Hubb AM 2025 With Project.xus		
Project Description	2025 AM - With Project				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	280	140	30	47	25	88	15	1530	28	94	360	45

Signal Information			
Cycle, s	105.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.3	1.7	49.9	4.7	11.9	10.5
Yellow	4.0	4.0	4.0	4.0	4.0	4.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

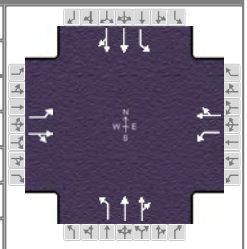
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	24.6	30.4	8.7	14.5	6.3	53.9	12.1	59.6
Change Period, ($Y+R_c$), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	2.9	0.0	2.9	0.0
Queue Clearance Time (g_s), s	20.0	11.2	5.1	9.9	3.0		8.3	
Green Extension Time (g_e), s	0.5	0.6	0.1	0.6	0.0	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	0.78	1.00	0.38		0.95	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	311	189		52	126		17	867	864	104	228	222
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1798		1767	1627		1682	1767	1755	1711	1796	1726
Queue Service Time (g_s), s	18.0	9.2		3.1	7.9		1.0	49.9	49.9	6.3	7.2	7.3
Cycle Queue Clearance Time (g_c), s	18.0	9.2		3.1	7.9		1.0	49.9	49.9	6.3	7.2	7.3
Green Ratio (*g/C*)	0.20	0.25		0.04	0.10		0.02	0.48	0.48	0.08	0.53	0.53
Capacity (*c*), veh/h	346	451		79	162		37	840	834	131	952	915
Volume-to-Capacity Ratio (*X*)	0.898	0.418		0.661	0.774		0.450	1.032	1.036	0.796	0.240	0.242
Back of Queue (*Q*), ft/ln (50 th percentile)	205.1	102		36.1	84		11.9	731.5	735.3	71.2	71.1	69.4
Back of Queue (*Q*), veh/ln (50 th percentile)	8.0	4.0		1.4	3.3		0.4	27.3	27.4	2.7	2.7	2.6
Queue Storage Ratio (*RQ*) (50 th percentile)	3.42	0.00		0.41	0.00		0.08	0.00	0.00	0.43	0.00	0.00
Uniform Delay (d_1), s/veh	41.2	32.9		49.4	46.1		50.7	27.5	27.5	47.7	13.3	13.3
Incremental Delay (d_2), s/veh	3.4	0.2		3.5	3.0		3.1	39.6	40.9	4.1	0.6	0.6
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	44.6	33.1		52.9	49.1		53.9	67.2	68.5	51.8	13.9	13.9
Level of Service (LOS)	D	C		D	D		D	F	F	D	B	B
Approach Delay, s/veh / LOS	40.3	D		50.2	D		67.7	E		21.0	C	
Intersection Delay, s/veh / LOS	53.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.31	B	1.90	B	1.90	B
Bicycle LOS Score / LOS	1.31	A	0.78	A	1.93	B	0.95	A

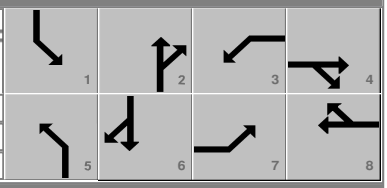
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	WH Pacific			Duration, h	0.25
Analyst	M Olson	Analysis Date	Sep 19, 2018	Area Type	Other
Jurisdiction	ADA County	Time Period	PM	PHF	0.90
Urban Street	Meridian Rd (SR 69)	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	Meridian at Hubbard	File Name	F-Meridian_Hubb PM 2025 With Project.xus		
Project Description	2025 PM - With Project				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	140	50	55	55	60	184	50	850	58	74	1170	305

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	4.7	1.4	48.4	4.9	1.7	18.8
Yellow	4.0	0.0	4.0	4.0	4.0	4.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	14.6	28.5	8.9	22.8	8.7	52.4	10.1	53.8
Change Period, ($Y+R_c$), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	2.9	0.0	2.9	0.0
Queue Clearance Time (g_s), s	10.6	7.6	5.4	18.1	5.3		6.7	
Green Extension Time (g_e), s	0.1	0.8	0.0	0.7	0.1	0.0	0.1	0.0
Phase Call Probability	0.99	1.00	0.82	1.00	0.79		0.90	
Max Out Probability	0.08	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	156	117		61	271		56	510	499	82	836	803
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1696		1767	1634		1682	1767	1726	1711	1796	1669
Queue Service Time (g_s), s	8.6	5.6		3.4	16.1		3.3	21.0	21.0	4.7	43.6	46.5
Cycle Queue Clearance Time (g_c), s	8.6	5.6		3.4	16.1		3.3	21.0	21.0	4.7	43.6	46.5
Green Ratio (*g/C*)	0.37	0.25		0.31	0.19		0.31	0.48	0.48	0.32	0.50	0.50
Capacity (*c*), veh/h	187	416		87	308		79	855	836	105	895	832
Volume-to-Capacity Ratio (*X*)	0.830	0.280		0.705	0.881		0.700	0.597	0.597	0.783	0.934	0.965
Back of Queue (*Q*), ft/ln (50 th percentile)	104.6	57.6		40.2	173.2		37	218.1	213.6	54	525.7	551.4
Back of Queue (*Q*), veh/ln (50 th percentile)	4.1	2.3		1.6	6.8		1.4	8.1	8.0	2.0	19.9	20.9
Queue Storage Ratio (*RQ*) (50 th percentile)	1.74	0.00		0.46	0.00		0.25	0.00	0.00	0.33	0.00	0.00
Uniform Delay (d_1), s/veh	43.8	30.6		46.8	39.5		46.9	18.7	18.7	46.3	23.5	24.2
Incremental Delay (d_2), s/veh	7.4	0.1		3.9	5.2		4.1	3.1	3.1	4.7	17.7	23.8
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	51.2	30.7		50.7	44.7		51.1	21.8	21.8	51.0	41.3	48.1
Level of Service (LOS)	D	C		D	D		D	C	C	D	D	D
Approach Delay, s/veh / LOS	42.4	D		45.8	D		23.3	C		44.9	D	
Intersection Delay, s/veh / LOS	38.0						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.30	B	1.90	B	1.90	B
Bicycle LOS Score / LOS	0.94	A	1.04	A	1.37	A	1.91	B

HCS7 Two-Way Stop-Control Report

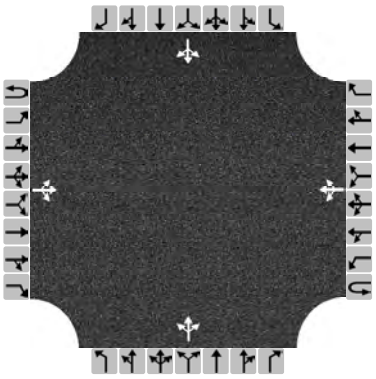
General Information

Analyst	Jerry Liu
Agency/Co.	WHPacific
Date Performed	9/15/2018
Analysis Year	2025
Time Analyzed	2025 Build AM
Intersection Orientation	East-West
Project Description	Trilogy

Site Information

Intersection	Locust Grove and Hubbard
Jurisdiction	
East/West Street	Hubbard R
North/South Street	Locust Grove
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume, V (veh/h)		138	132	25		20	104	10		10	315	40		5	55	21
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		153				22					405				90	
Capacity, c (veh/h)		1451				1394					363					
v/c Ratio		0.11				0.02					1.12					
95% Queue Length, Q_{95} (veh)		0.4				0.0					15.2					
Control Delay (s/veh)		7.8				7.6					116.2					
Level of Service, LOS		A				A					F					
Approach Delay (s/veh)	4.1				1.2				116.2							
Approach LOS									F							

HCS7 Two-Way Stop-Control Report

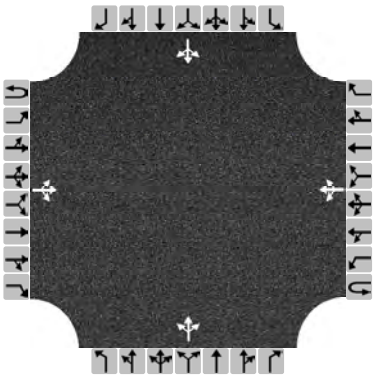
General Information

Analyst	Jerry Liu
Agency/Co.	WHPacific
Date Performed	9/15/2018
Analysis Year	2025
Time Analyzed	2025 Build PM
Intersection Orientation	East-West
Project Description	Trilogy

Site Information

Intersection	Locust Grove and Hubbard
Jurisdiction	
East/West Street	Hubbard R
North/South Street	Locust Grove
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume, V (veh/h)		47	107	25		105	252	10		20	120	30		5	285	41
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

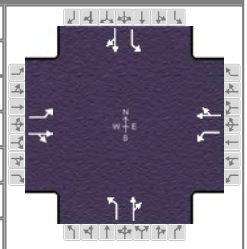
Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		52				117					188				369	
Capacity, c (veh/h)		1264				1427									304	
v/c Ratio		0.04				0.08									1.22	
95% Queue Length, Q_{95} (veh)		0.1				0.3									16.5	
Control Delay (s/veh)		8.0				7.7									159.2	
Level of Service, LOS		A				A									F	
Approach Delay (s/veh)	2.3				2.8								159.2			
Approach LOS													F			

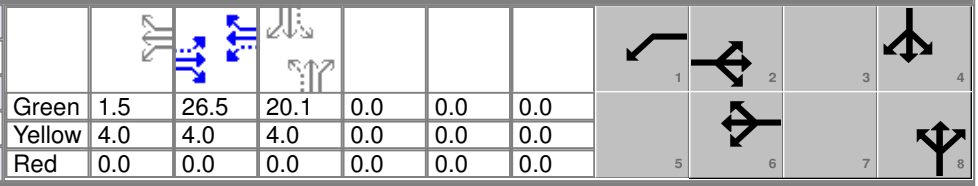
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	WH Pacific			Duration, h	0.25
Analyst	Olson	Analysis Date	9/26/2018	Area Type	Other
Jurisdiction	ADA County	Time Period	AM	PHF	0.90
Urban Street	E Columbia Rd	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	Columbia and Locust Gr…	File Name	K-Columb_LocustGrov AM 2025 WithProj.xus		
Project Description	2025 With Project AM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	140	510	15	15	150	30	30	392	35	45	79	40

Signal Information			
Cycle, s	60.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	1.5	26.5	20.1	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

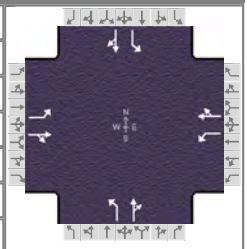
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		4
Case Number		6.3	1.0	4.0		6.0		6.0
Phase Duration, s		30.5	5.5	35.9		24.1		24.1
Change Period, ($Y+R_c$), s		4.0	4.0	4.0		4.0		4.0
Max Allow Headway (*MAH*), s		0.0	3.0	0.0		3.0		3.0
Queue Clearance Time (g_s), s			2.3			16.0		18.9
Green Extension Time (g_e), s		0.0	0.0	0.0		1.2		1.2
Phase Call Probability			0.24			1.00		1.00
Max Out Probability			0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	156	583		17	200		33	474		50	132	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1173	1846		1767	1801		1248	1829		912	1750	
Queue Service Time (g_s), s	5.1	15.5		0.3	3.5		1.2	14.0		3.1	3.3	
Cycle Queue Clearance Time (g_c), s	5.3	15.5		0.3	3.5		4.3	14.0		16.9	3.3	
Green Ratio (*g/C*)	0.44	0.44		0.50	0.53		0.33	0.33		0.33	0.33	
Capacity (*c*), veh/h	635	814		311	958		473	612		216	586	
Volume-to-Capacity Ratio (*X*)	0.245	0.716		0.054	0.209		0.071	0.775		0.232	0.226	
Back of Queue (*Q*), ft/ln (50 th percentile)	29.7	152.2		2	26.6		7.3	123.6		15.4	27.1	
Back of Queue (*Q*), veh/ln (50 th percentile)	1.2	5.9		0.1	1.0		0.3	4.8		0.6	1.1	
Queue Storage Ratio (*RQ*) (50 th percentile)	0.30	0.00		0.02	0.00		0.07	0.00		0.15	0.00	
Uniform Delay (d_1), s/veh	10.9	13.7		10.3	7.4		15.9	17.9		25.4	14.4	
Incremental Delay (d_2), s/veh	0.9	5.4		0.0	0.5		0.0	0.8		0.2	0.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	11.8	19.1		10.3	7.9		15.9	18.7		25.6	14.4	
Level of Service (LOS)	B	B		B	A		B	B		C	B	
Approach Delay, s/veh / LOS	17.5	B		8.1	A		18.5	B		17.5	B	
Intersection Delay, s/veh / LOS	16.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.89	B	1.87	B	1.90	B	1.90	B
Bicycle LOS Score / LOS	1.71	B	0.85	A	1.33	A	0.79	A

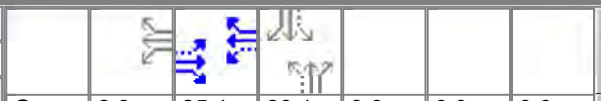
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	WH Pacific			Duration, h	0.25
Analyst	Olson	Analysis Date	9/26/2018	Area Type	Other
Jurisdiction	ADA County	Time Period	PM	PHF	0.90
Urban Street	E Columbia Rd	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	Columbia and Locust Gr…	File Name	L-Columb_LocustGrov PM 2025 WithProj.xus		
Project Description	2025 With Project PM				

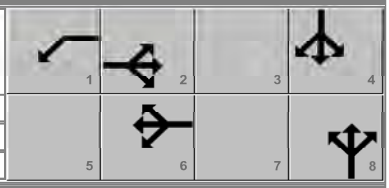


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	35	225	15	35	560	40	15	127	30	40	273	170

Signal Information			
Cycle, s	60.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.9	25.1	20.1	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		4
Case Number		6.3	1.0	4.0		6.0		6.0
Phase Duration, s		29.1	6.9	35.9		24.1		24.1
Change Period, ($Y+R_c$), s		4.0	4.0	4.0		4.0		4.0
Max Allow Headway (*MAH*), s		0.0	3.0	0.0		3.0		3.0
Queue Clearance Time (g_s), s			2.7			18.7		17.8
Green Extension Time (g_e), s		0.0	0.0	0.0		1.3		1.3
Phase Call Probability			0.48			1.00		1.00
Max Out Probability			0.00			0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	39	267		39	667		17	174		44	492	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	764	1835		1767	1834		897	1794		1201	1736	
Queue Service Time (g_s), s	2.4	5.9		0.7	16.1		1.1	4.3		1.7	15.8	
Cycle Queue Clearance Time (g_c), s	11.7	5.9		0.7	16.1		16.7	4.3		5.9	15.8	
Green Ratio (*g/C*)	0.42	0.42		0.50	0.53		0.33	0.33		0.33	0.33	
Capacity (*c*), veh/h	320	765		554	974		186	602		438	582	
Volume-to-Capacity Ratio (*X*)	0.122	0.349		0.070	0.684		0.090	0.290		0.101	0.846	
Back of Queue (*Q*), ft/ln (50 th percentile)	10.7	54.2		4.7	135.6		5.2	36.5		10.1	134	
Back of Queue (*Q*), veh/ln (50 th percentile)	0.4	2.1		0.2	5.3		0.2	1.4		0.4	5.2	
Queue Storage Ratio (*RQ*) (50 th percentile)	0.11	0.00		0.05	0.00		0.05	0.00		0.10	0.00	
Uniform Delay (d_1), s/veh	17.2	11.9		8.3	10.4		26.2	14.7		16.8	18.5	
Incremental Delay (d_2), s/veh	0.8	1.3		0.0	3.9		0.1	0.1		0.0	1.3	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	18.0	13.2		8.3	14.3		26.3	14.8		16.9	19.8	
Level of Service (LOS)	B	B		A	B		C	B		B	B	
Approach Delay, s/veh / LOS	13.8	B		13.9	B		15.8	B		19.6	B	
Intersection Delay, s/veh / LOS	15.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.89	B	1.87	B	1.90	B	1.90	B
Bicycle LOS Score / LOS	0.99	A	1.65	B	0.80	A	1.37	A

HCS7 Two-Way Stop-Control Report

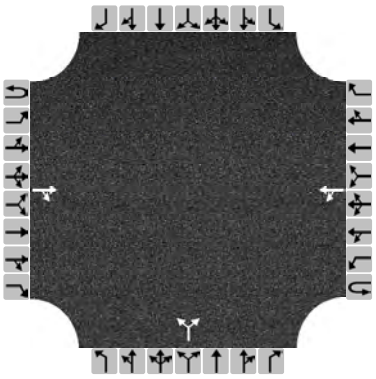
General Information

Analyst	Jerry Liu
Agency/Co.	WHPacific
Date Performed	9/15/2018
Analysis Year	2025
Time Analyzed	2025 AM
Intersection Orientation	East-West
Project Description	Trilogy

Site Information

Intersection	WesEntrance at Hubbard Rd
Jurisdiction	
East/West Street	Hubbard R
North/South Street	West Entrance
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume, V (veh/h)			250	9		10	125			28		45				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized		No				No				No				No		
Median Type/Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				7.13		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						11					81					
Capacity, c (veh/h)						1267					642					
v/c Ratio						0.01					0.13					
95% Queue Length, Q_{95} (veh)						0.0					0.4					
Control Delay (s/veh)						7.9					11.4					
Level of Service, LOS						A					B					
Approach Delay (s/veh)						0.6				11.4						
Approach LOS										B						

HCS7 Two-Way Stop-Control Report

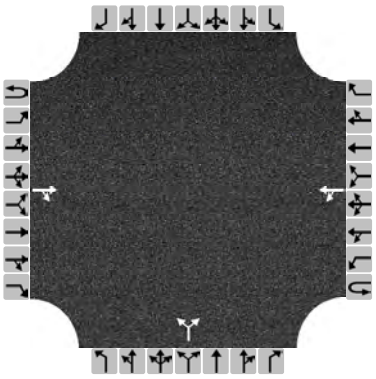
General Information

Analyst	Jerry Liu
Agency/Co.	WHPacific
Date Performed	9/15/2018
Analysis Year	2025
Time Analyzed	2025 PM
Intersection Orientation	East-West
Project Description	Trilogy

Site Information

Intersection	WesEntrance at Hubbard Rd
Jurisdiction	
East/West Street	Hubbard R
North/South Street	West Entrance
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume, V (veh/h)			150	32		33	280			19		29				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized		No				No				No				No		
Median Type/Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				7.13		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						37					53					
Capacity, c (veh/h)						1361					606					
v/c Ratio						0.03					0.09					
95% Queue Length, Q_{95} (veh)						0.1					0.3					
Control Delay (s/veh)						7.7					11.5					
Level of Service, LOS						A					B					
Approach Delay (s/veh)						1.0				11.5						
Approach LOS										B						

HCS7 Two-Way Stop-Control Report

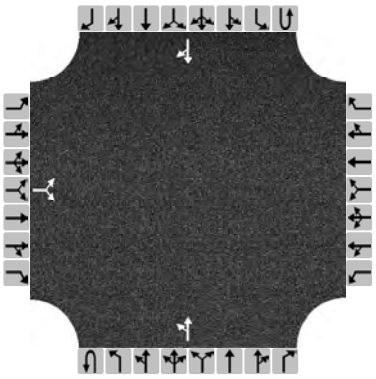
General Information

Analyst	Jerry Liu
Agency/Co.	WHPacific
Date Performed	9/15/2018
Analysis Year	2025
Time Analyzed	2025 AM
Intersection Orientation	North-South
Project Description	Trilogy

Site Information

Intersection	East Entr at Locust Gro
Jurisdiction	
East/West Street	East Entrance
North/South Street	Locust Grove Rd
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume, V (veh/h)		60		7						3	305				75	25
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			75							3						
Capacity, c (veh/h)			595							1471						
v/c Ratio			0.13							0.00						
95% Queue Length, Q_{95} (veh)			0.4							0.0						
Control Delay (s/veh)			11.9							7.5						
Level of Service, LOS			B							A						
Approach Delay (s/veh)		11.9								0.1						
Approach LOS		B														

HCS7 Two-Way Stop-Control Report

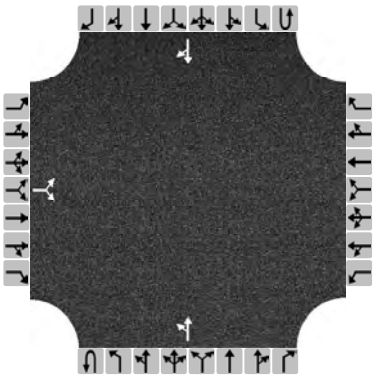
General Information

Analyst	Jerry Liu
Agency/Co.	WHPacific
Date Performed	9/15/2018
Analysis Year	2025
Time Analyzed	2025 PM
Intersection Orientation	North-South
Project Description	Trilogy

Site Information

Intersection	East Entr at Locust Gro
Jurisdiction	
East/West Street	East Entrance
North/South Street	Locust Grove Rd
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume, V (veh/h)		40		5						8	130				330	85
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			50							9						
Capacity, c (veh/h)			488							1094						
v/c Ratio			0.10							0.01						
95% Queue Length, Q_{95} (veh)			0.3							0.0						
Control Delay (s/veh)			13.2							8.3						
Level of Service, LOS			B							A						
Approach Delay (s/veh)		13.2								0.6						
Approach LOS		B														

SIGNAL WARRANT ANALYSIS

Introduction

- The Signal Warrant Analysis Spreadsheets are a tool for assisting traffic engineers when evaluating the need for a traffic signal installation
- The filled spreadsheets can be used as part of the supporting documents for the signal warrant evaluation

Note: This templates are a useful resource, but it remains necessary to apply engineering judgment and to consider specific environmental, traffic, geometric, and operational conditions

Instructions

Fill in "Orange" areas only	
Automated cells based on in Input Data in "orange" cells	
General Information	Fill in below the general information including: District, County (drop-down menu) City, Engineer, Date Major and Minor Street with corresponding number of lanes and speed limits
Enter Eight Hour Volumes	Any 8 hours of an average day. Major-street and minor-street volumes shall be for the same 8 hours; however, the 8 hours satisfied in Condition A shall **not** be required to be the same 8 hours satisfied in Condition B **for 80% columns only.** On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.
Enter Four Hour Volumes	Any 4 hours of an average day. Vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only, not required to be on the same approach during each of the 4 hours)
Enter Pedestrian Volumes (4-hr)	Pedestrians per hour crossing the major street (total of all crossings)
Enter Peak Hour Volumes	Vehicular: Any four consecutive 15-minute periods of an average day Pedestrian: Any four consecutive 15-minute periods of an average day representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings)

Input Data

Form 750-020-01
TRAFFIC ENGINEERING
10/15

City: **Kuna**
County:
District:

Engineer: **R Beckman**
Date: **September 24, 2018**

Major Street: **Columbia Rd** # Lanes: **1** Major Approach Speed: **50**
Minor Street: **Locust Grove** # Lanes: **1** Minor Approach Speed: **50**

Eight Hour Volumes (Condition A)

Hours	Major Street (total of both approaches)	Minor Street (one direction only)
12:00 PM	893	353
1:00 PM	1667	659
2:00 PM	774	306
3:00 PM	1250	494
4:00 PM	714	282
5:00 PM	893	353
6:00 PM	714	282
7:00 PM	833	329

Eight Hour Volumes (Condition B)

Hours	Major Street (total of both approaches)	Minor Street (one direction only)

Highest Four Hour Vehicular Volumes

Hours	Major Street (total of both approaches)	Minor Street (one direction only)
12:00 PM	893	353
1:00 PM	1667	659
2:00 PM	774	306
3:00 PM	1250	494

Highest Four Hour Pedestrian Volumes

Hours	Major Street (total of both approaches)	Pedestrian Crossings on Major Street

Vehicular Peak Hour Volumes

Peak Hour	Major Street (total of both approaches)	Minor Street (one direction only)	Total Entering Volume
5:00 PM	893	353	1465

Pedestrian Peak Hour Volumes

Peak Hour	Major Street (total of both approaches)	Pedestrian Crossing Volumes on Major Street

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Kuna**	Engineer:	**R Beckman**
County:		Date:	**September 24, 2018**
District:			

Major Street:	**Columbia Rd**	Lanes:	**1**	Major Approach Speed:	**50**
Minor Street:	**Locust Grove**	Lanes:	**1**	Minor Approach Speed:	**50**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ 70% ☐ 100%

WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME

Warrant 1 is satisfied if Condition A or Condition B is "100%" satisfied for eight hours. ☑ Yes ☐ No

Warrant 1 is also satisfied if both Condition A and Condition B are "80%" satisfied (should only be applied after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems). ☑ Yes ☐ No

Condition A - Minimum Vehicular Volume

Condition A is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

100% Satisfied: ☑ Yes ☐ No
80% Satisfied: ☑ Yes ☐ No
70% Satisfied: ☑ Yes ☐ No

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	**Minor**	**100%[a]**	**80%[b]**	**70%[c]**	**100%[a]**	**80%[b]**	**70%[c]**
1	1	500	400	350	150	120	105
2 or more	1	600	480	420	150	120	105
2 or more	2 or more	600	480	420	200	160	140
1	2 or more	500	400	350	200	160	140

[a] Basic Minimum hourly volume
[b] Used for combination of Conditions A and B after adequate trial of other remedial measures
[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Street	Eight Highest Hours							
	12:00 PM	**1:00 PM**	**2:00 PM**	**3:00 PM**	**4:00 PM**	**5:00 PM**	**6:00 PM**	**7:00 PM**
Major	893	1,667	774	1,250	714	893	714	833
Minor	353	659	306	494	282	353	282	329

Existing Volumes

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

Condition B - Interruption of Continuous Traffic

Condition B is intended for application where Condition A is not satisfied and the traffic volume on a major street is so heavy that traffic on the minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

Applicable:	☐ Yes	☑ No
100% Satisfied:	☐ Yes	☐ No
80% Satisfied:	☐ Yes	☐ No
70% Satisfied:	☐ Yes	☐ No

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	**Minor**	**100%[a]**	**80%[b]**	**70%[c]**	**100%[a]**	**80%[b]**	**70%[c]**
1	1	750	600	525	75	60	53
2 or more	1	900	720	630	75	60	53
2 or more	2 or more	900	720	630	100	80	70
1	2 or more	750	600	525	100	80	70

[a] Basic Minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Eight Highest Hours								
Street								
Major								
Minor								

Existing Volumes

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Kuna	Engineer:	R Beckman
County:		Date:	September 24, 2018
District:			

Major Street:	Columbia Rd	Lanes:	1	Major Approach Speed:	50
Minor Street:	Locust Grove	Lanes:	1	Minor Approach Speed:	50

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ Yes ☐ No

WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

If all four points lie above the appropriate line, then the warrant is satisfied.

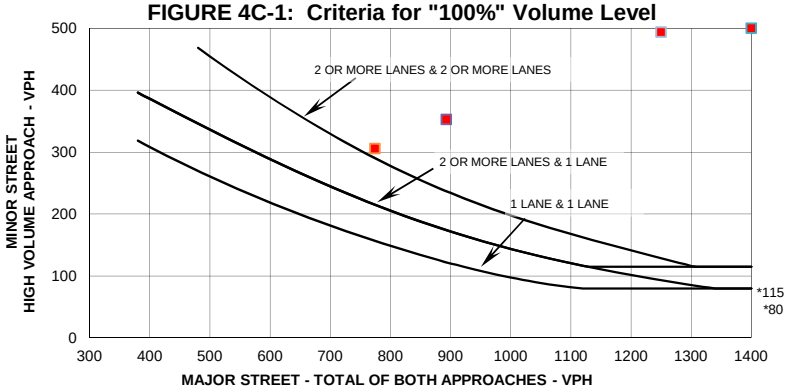
Applicable: ☑ Yes ☐ No
Satisfied: ☑ Yes ☐ No

Plot four volume combinations on the applicable figure below.

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street
12:00 PM	893	353
1:00 PM	1667	659
2:00 PM	774	306
3:00 PM	1250	494

FIGURE 4C-1: Criteria for "100%" Volume Level



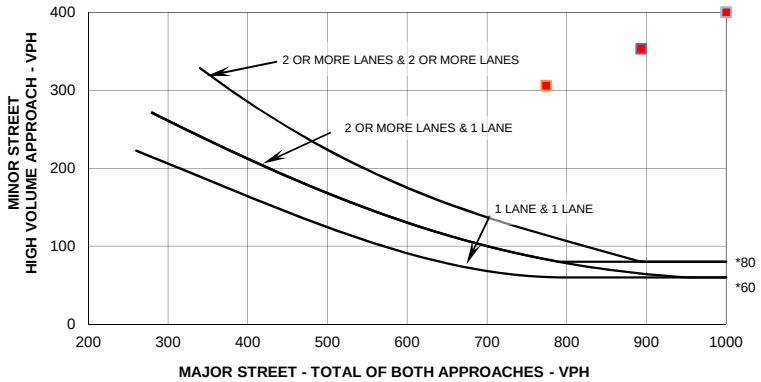
** Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 80 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street
12:00 PM	893	353
1:00 PM	1667	659
2:00 PM	774	306
3:00 PM	1250	494

FIGURE 4C-2: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



** Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 60 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Kuna	Engineer:	R Beckman
County:		Date:	September 24, 2018
District:			

Major Street:	Columbia Rd	Lanes:	1	Major Approach Speed:	50
Minor Street:	Locust Grove	Lanes:	1	Minor Approach Speed:	50

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ 70% ☐ 100%

WARRANT 3 - PEAK HOUR

*If all three criteria are fulfilled **or** the plotted point lies above the appropriate line, then the warrant is satisfied.*

Applicable: ☐ Yes ☑ No
Satisfied: ☐ Yes ☐ No

Unusual condition justifying use of warrant:

Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.
5:00 PM	893	353

Criteria

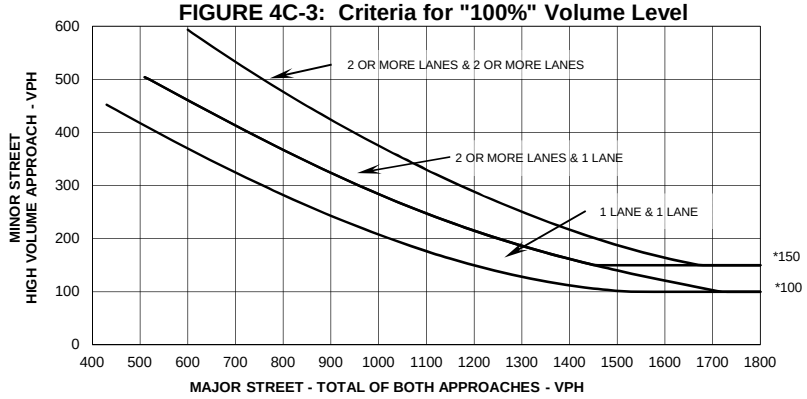
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes ☑ No	

2. Volume on Minor Approach One-Direction *(vehicles per hour)		
Approach Lanes	1	2
Volume Criteria*	100	150
Volume*		
Fulfilled?:	☐ Yes ☑ No	

3. Total Intersection Entering Volume *(vehicles per hour)		
No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		
Fulfilled?:	☑ Yes ☐ No	

Plot volume combination on the applicable figure below.

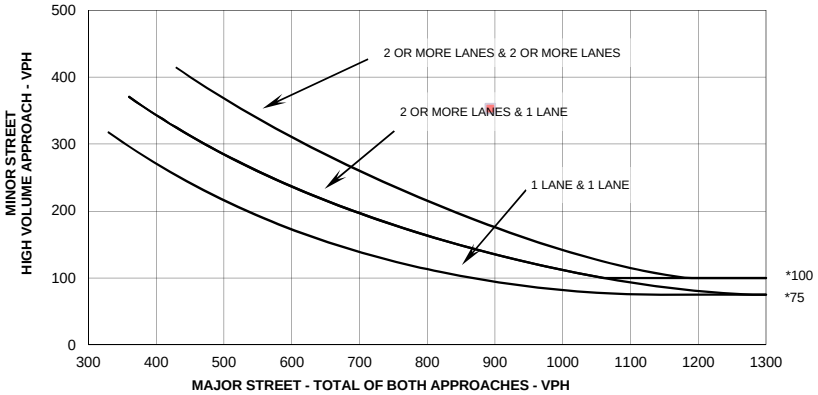
FIGURE 4C-3: Criteria for "100%" Volume Level



** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-4: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Kuna**	Engineer:	**R Beckman**
County:		Date:	**September 24, 2018**
District:			

Major Street:	**Columbia Rd**	Lanes:	**1**	Major Approach Speed:	**50**
Minor Street:	**Locust Grove**	Lanes:	**1**	Minor Approach Speed:	**50**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ 70% ☐ 100%

WARRANT 4 - PEDESTRIAN VOLUME

For each of any 4 hours of an average day, the plotted points lie above the appropriate line, then the warrant is satisfied.

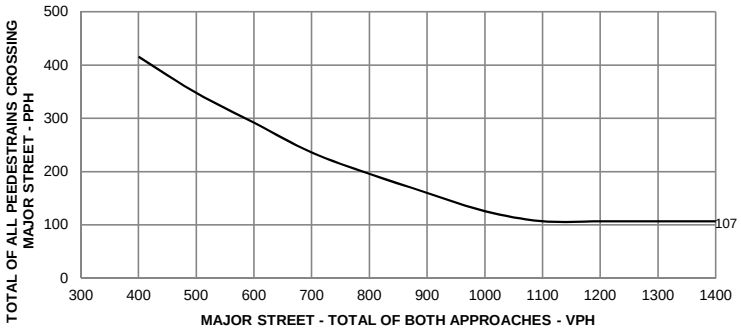
Applicable: ☐ Yes ☑ No
Satisfied: ☐ Yes ☐ No

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total

Plot four volume combinations on the applicable figure below.

Figure 4C-5. Criteria for "100%" Volume Level

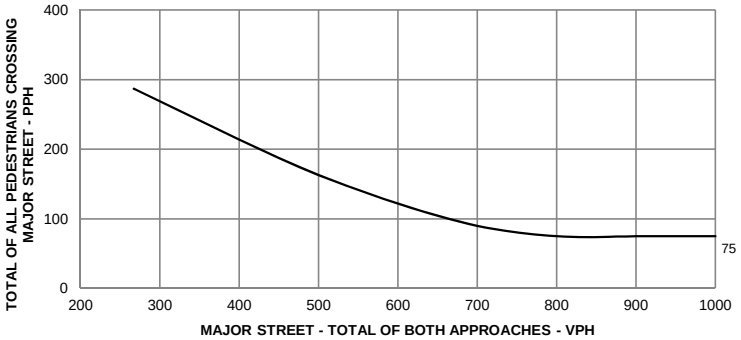


** Note: 107 pph applies as the lower threshold volume*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total

Figure 4C-6 Criteria for "70%" Volume Level



** Note: 75 pph applies as the lower threshold volume*

WARRANT 4 - PEDESTRIAN VOLUME

For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point falls above the appropriate line, then the warrant is satisfied.

Applicable: ☐ Yes ☐ No

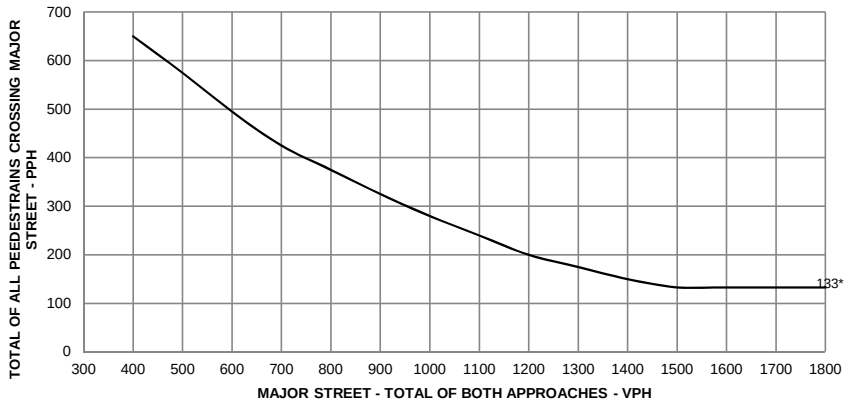
Satisfied: ☐ Yes ☐ No

Plot one volume combination on the applicable figure below.

100% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total

Figure 4C-7. Criteria for "100%" Volume Level - Peak Hour

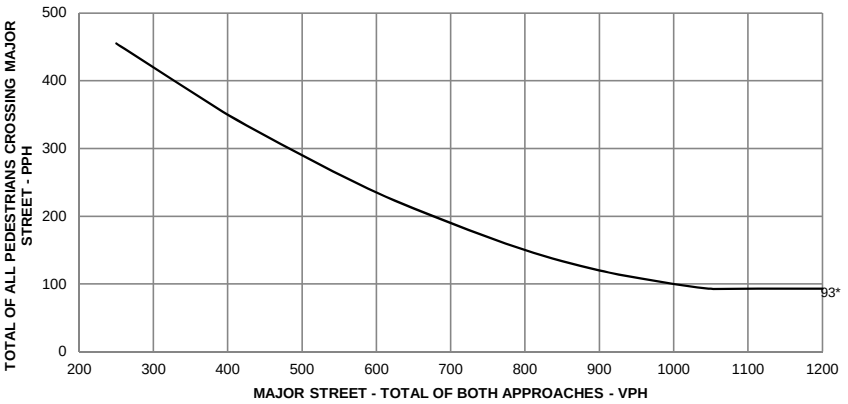


** Note: 133 pph applies as the lower threshold volume*

70% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total

Figure 4C-8 Criteria for "70%" Volume Level - Peak Hour



** Note: 93 pph applies as the lower threshold volume*

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Kuna**	Engineer:	**R Beckman**
County:		Date:	**September 24, 2018**
District:			

Major Street:	**Columbia Rd**	Lanes:	**1**	Major Approach Speed:	**50**
Minor Street:	**Locust Grove**	Lanes:	**1**	Minor Approach Speed:	**50**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 5 - SCHOOL CROSSING

Record hours where criteria are fulfilled and the corresponding volume or gap frequency in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☐ No

Criteria				Fulfilled? Yes	Fulfilled? No
1. There are a minimum of 20 students crossing the major street during the highest crossing hour.	Students:	Hour:			
2. There are fewer adequate gaps in the major street traffic stream during the period when the children are using the established school crossing than the number of minutes in the same period.		Minutes:	Gaps:		
3. The nearest traffic signal along the major street is located more than 300 ft. (90 m) away, or the nearest signal is within 300 ft. (90 m) but the proposed traffic signal will not restrict the progressive movement of traffic.					

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Kuna**	Engineer:	**R Beckman**
County:		Date:	**September 24, 2018**
District:			

Major Street:	**Columbia Rd**	Lanes:	**1**	Major Approach Speed:	**50**
Minor Street:	**Locust Grove**	Lanes:	**1**	Minor Approach Speed:	**50**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 6 - COORDINATED SIGNAL SYSTEM

Indicate if the criteria are fulfilled in the boxes provided. The warrant is satisfied if either criterion is fulfilled. This warrant should not be applied when the resulting signal spacing would be less than 300 m (1,000 ft.).

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☑ No

Criteria	Fulfilled? Yes	Fulfilled? No
1. On a one-way street or a street that has traffic predominately in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.		
2. On a two-way street, adjacent signals do not provide the necessary degree of platooning, and the proposed and adjacent signals will collectively provide a progressive operation.		

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Kuna**	Engineer:	**R Beckman**
County:		Date:	**September 24, 2018**
District:			

Major Street:	**Columbia Rd**	Lanes:	**1**	Major Approach Speed:	**50**
Minor Street:	**Locust Grove**	Lanes:	**1**	Minor Approach Speed:	**50**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 7 - CRASH EXPERIENCE

Record hours where criteria are fulfilled, the corresponding volume, and other information in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☐ No

Criteria		Hour	Volume		Met?		Fulfilled?	
			Major	Minor	Yes	No	Yes	No
1. One of the warrants to the right is met.	Warrant 1, Condition A (80% satisfied)							
	Warrant 1, Condition B (80% satisfied)							
	Warrant 4, Pedestrian Volume at 80% of volume requirements: # ped/hr for four (4) hours or # ped/hr for one (1) hour.							
2. Adequate trial of other remedial measure has failed to reduce crash frequency.		Measure tried:						
3. Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-month period.		Observed Crash Types:		Number of crashes per 12 months:				

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Kuna**	Engineer:	**R Beckman**
County:		Date:	**September 24, 2018**
District:			

Major Street:	**Columbia Rd**	Lanes:	**1**	Major Approach Speed:	**50**
Minor Street:	**Locust Grove**	Lanes:	**1**	Minor Approach Speed:	**50**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 8 - ROADWAY NETWORK

Record hours where criteria are fulfilled, and the corresponding volume or other information in the boxes provided. The warrant is satisfied if at least one of the criteria is fulfilled and if all intersecting routes have one or more of the Major Route characteristics listed.

Applicable: ☐ Yes ☐ No
Satisfied: ☐ Yes ☐ No

Criteria								Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Both of the criteria to the right are met.	a. Total entering volume of at least 1,000 veh/hr during a typical weekday peak hour.		Entering Volume:								
	b. Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.		Warrant:	1	2	3					
			Satisfied?:								
2. Total entering volume at least 1,000 veh/hr for each of any 5 hrs of a non-normal business day (Sat. or Sun.)							← Hour				
							←Volume				

Characteristics of Major Routes		Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Part of the street or highway system that serves as the principal roadway network for through traffic flow.	Major Street:				
	Minor Street:				
2. Rural or suburban highway outside of, entering, or traversing a city.	Major Street:				
	Minor Street:				
3. Appears as a major route on an official plan.	Major Street:				
	Minor Street:				

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Kuna	Engineer:	R Beckman
County:		Date:	September 24, 2018
District:			

Major Street:	Columbia Rd	Lanes:	1	Major Approach Speed:	50
Minor Street:	Locust Grove	Lanes:	1	Minor Approach Speed:	50

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Approach Lane Criteria

1. How many approach lanes are there at the track crossing? ☐ 1 ☐ 2 or

If there is 1 lane, use Figure 4C-9 and if there are 2 or more, use Figure 4C-10. ☐ Fig 4C-9 ☐ Fig 4C-10

WARRANT 9 - INTERSECTION NEAR A GRADE CROSSING

This signal warrant should be applied only after adequate consideration has been given to other alternatives or after a trial of an alternative has failed to alleviate the safety concerns associated with the grade crossing.

Indicate if both criteria are fulfilled in the boxes provided. The warrant is satisfied if both criteria are met.

Applicable: ☐ Yes ☐ No

Satisfied: ☐ Yes ☐ No

Criteria	Fulfilled? Yes	Fulfilled? No
1. A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach; and	☐	☐
2. During the highest traffic volume hour during which the rail uses the crossing, the plotted point falls above the applicable curve for the existing combination of approach lanes over the track and the distance D (clear storage distance).	☐	☐

Use the following tables (4C-2, 4C-3, and 4C-4 to appropriately adjust the minor-street approach volume).

Inputs		Adjustment Factors from Tables
Occurrences of Rail traffic per day		
% of High Occupancy Buses on Minor-Street Approach		1.00
Enter D (feet)		
% of Tractor-Trailer Trucks on Minor-Street Approach		0.50

Table 4C-2. Adjustment Factor for Daily Frequency of Rail Traffic

Rail Traffic per Day	Adjustment Factor
1	0.67
2	0.91
3 to 5	1.00
6 to 8	1.18
9 to 11	1.25
12 or more	1.33

Table 4C-3. Adjustment Factor for Percentage of High-Occupancy Buses

% of High-Occupancy Buses* on Minor Street Approach	Adjustment Factor
0%	1.00
2%	1.09
4%	1.19
6% or more	1.32

* A high-occupancy bus is defined as a bus occupied by at least 20 people

Table 4C-4. Adjustment Factor for Percentage of Tractor-Trailer Trucks

% of Tractor-Trailer Trucks on Minor-Street Approach	Adjustment Factor	
	D less than 70 feet	D of 70 feet or more
0% to 2.5%	0.50	0.50
2.6% to 7.5%	0.75	0.75
7.6% to 12.5%	1.00	1.00
12.6% to 17.5%	2.30	1.15
17.6% to 22.5%	2.70	1.35
22.6% to 27.5%	3.28	1.64
More than 27.5%	4.18	2.09

Input the major and minor street volumes before adjustment factors are applied

1 Approach Lane		

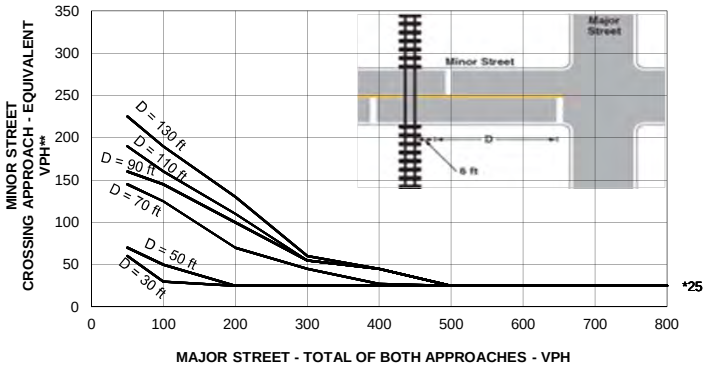
D (ft) Major Vol. Minor Vol.

After adjustment factors are applied

1 Approach Lane w/Factors		

D (ft) Major Vol. Minor Vol.

FIGURE 4C-9: Criteria for 1 Approach Lane at the Track Crossing



** Note: 25 vph applies as the lower threshold volume*

** *Note: VPH after applying the adjustment factors in Tables 4C-2, 4C, and or 4C-4, if appropriate*

Input D and the major and minor street volumes before adjustment factors are applied

2 or more Approach Lanes		

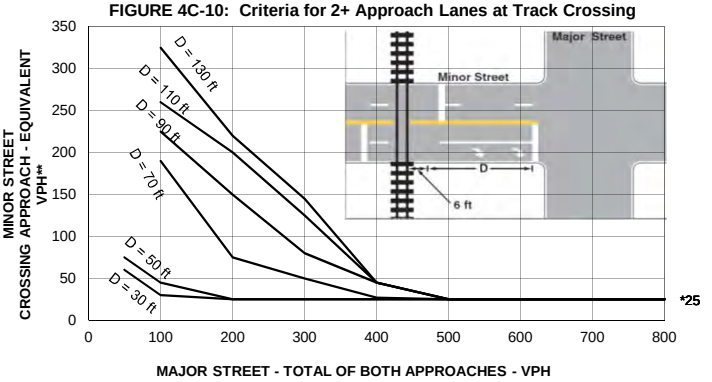
D (ft) Major Vol. Minor Vol.

After adjustment factors are applied

2+ Approach Lane w/Factors		

D (ft) Major Vol. Minor Vol.

FIGURE 4C-10: Criteria for 2+ Approach Lanes at Track Crossing



** Note: 25 vph applies as the lower threshold volume*

** *Note: VPH after applying the adjustment factors in Tables 4C-2, 4C, and or 4C-4, if appropriate*

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Kuna**	Engineer:	**R Beckman**
County:		Date:	**September 24, 2018**
District:			

Major Street:	**Columbia Rd**	Lanes:	**1**	Major Approach Speed:	**50**
Minor Street:	**Locust Grove**	Lanes:	**1**	Minor Approach Speed:	**50**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

CONCLUSIONS

Remarks: **Warrants met for 2025 Background Traffic Volumes**

WARRANTS SATISFIED:

☑ Warrant 1	☐ Not Applicable
☑ Warrant 2	☐ Not Applicable
☐ Warrant 3	☑ Not Applicable
☐ Warrant 4	☑ Not Applicable
☐ Warrant 5	☑ Not Applicable
☐ Warrant 6	☑ Not Applicable
☐ Warrant 7	☑ Not Applicable
☐ Warrant 8	☑ Not Applicable
☐ Warrant 9	☑ Not Applicable

SIGNAL WARRANT ANALYSIS

Introduction

- The Signal Warrant Analysis Spreadsheets are a tool for assisting traffic engineers when evaluating the need for a traffic signal installation
- The filled spreadsheets can be used as part of the supporting documents for the signal warrant evaluation

Note: This templates are a useful resource, but it remains necessary to apply engineering judgment and to consider specific environmental, traffic, geometric, and operational conditions

Instructions

Fill in "Orange" areas only	
Automated cells based on in Input Data in "orange" cells	
General Information	Fill in below the general information including: District, County (drop-down menu) City, Engineer, Date Major and Minor Street with corresponding number of lanes and speed limits
Enter Eight Hour Volumes	Any 8 hours of an average day. Major-street and minor-street volumes shall be for the same 8 hours; however, the 8 hours satisfied in Condition A shall **not** be required to be the same 8 hours satisfied in Condition B **for 80% columns only.** On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.
Enter Four Hour Volumes	Any 4 hours of an average day. Vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only, not required to be on the same approach during each of the 4 hours)
Enter Pedestrian Volumes (4-hr)	Pedestrians per hour crossing the major street (total of all crossings)
Enter Peak Hour Volumes	Vehicular: Any four consecutive 15-minute periods of an average day Pedestrian: Any four consecutive 15-minute periods of an average day representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings)

Input Data

Form 750-020-01
TRAFFIC ENGINEERING
10/15

City: **Kuna**
County:
District:

Engineer: **R Beckman**
Date: **September 24, 2018**

Major Street: **Locust Grove** # Lanes: **1** Major Approach Speed: **50**
Minor Street: **Hubbard Rd** # Lanes: **1** Minor Approach Speed: **45**

Eight Hour Volumes (Condition A)

Hours	Major Street (total of both approaches)	Minor Street (one direction only)
12:00 PM	150	123
1:00 PM	160	132
2:00 PM	235	193
3:00 PM	240	197
4:00 PM	390	320
5:00 PM	390	320
6:00 PM	240	197
7:00 PM	155	127

Eight Hour Volumes (Condition B)

Hours	Major Street (total of both approaches)	Minor Street (one direction only)

Highest Four Hour Vehicular Volumes

Hours	Major Street (total of both approaches)	Minor Street (one direction only)
3:00 PM	240	197
4:00 PM	390	320
5:00 PM	390	320
6:00 PM	240	197

Highest Four Hour Pedestrian Volumes

Hours	Major Street (total of both approaches)	Pedestrian Crossings on Major Street

Vehicular Peak Hour Volumes

Peak Hour	Major Street (total of both approaches)	Minor Street (one direction only)	Total Entering Volume
5:00 PM	390	320	860

Pedestrian Peak Hour Volumes

Peak Hour	Major Street (total of both approaches)	Pedestrian Crossing Volumes on Major Street

Form 750-020-01
TRAFFIC ENGINEERING
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State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Kuna	Engineer:	R Beckman
County:		Date:	September 24, 2018
District:			

Major Street:	Locust Grove	Lanes:	1	Major Approach Speed:	50
Minor Street:	Hubbard Rd	Lanes:	1	Minor Approach Speed:	45

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ 70% ☐ 100%

WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME

Warrant 1 is satisfied if Condition A or Condition B is "100%" satisfied for eight hours. ☐ Yes ☑ No

Warrant 1 is also satisfied if both Condition A and Condition B are "80%" satisfied (should only be applied after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems). ☐ Yes ☑ No

Condition A - Minimum Vehicular Volume

Condition A is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

100% Satisfied: ☐ Yes ☑ No
80% Satisfied: ☐ Yes ☑ No
70% Satisfied: ☐ Yes ☑ No

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	Minor	100%[a]	80%[b]	70%[c]	100%[a]	80%[b]	70%[c]
1	1	500	400	350	150	120	105
2 or more	1	600	480	420	150	120	105
2 or more	2 or more	600	480	420	200	160	140
1	2 or more	500	400	350	200	160	140

[a] Basic Minimum hourly volume
[b] Used for combination of Conditions A and B after adequate trial of other remedial measures
[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Street	Eight Highest Hours							
	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM
Major	150	160	235	240	390	390	240	155
Minor	123	132	193	197	320	320	197	127

Existing Volumes

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

Condition B - Interruption of Continuous Traffic

Condition B is intended for application where Condition A is not satisfied and the traffic volume on a major street is so heavy that traffic on the minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

Applicable:	☐ Yes	☑ No
100% Satisfied:	☐ Yes	☑ No
80% Satisfied:	☐ Yes	☑ No
70% Satisfied:	☐ Yes	☑ No

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	**Minor**	**100%[a]**	**80%[b]**	**70%[c]**	**100%[a]**	**80%[b]**	**70%[c]**
1	1	750	600	525	75	60	53
2 or more	1	900	720	630	75	60	53
2 or more	2 or more	900	720	630	100	80	70
1	2 or more	750	600	525	100	80	70

[a] Basic Minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Eight Highest Hours								
Street								
Major								
Minor								

Existing Volumes

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Kuna	Engineer:	R Beckman
County:		Date:	September 24, 2018
District:			

Major Street:	Locust Grove	Lanes:	1	Major Approach Speed:	50
Minor Street:	Hubbard Rd	Lanes:	1	Minor Approach Speed:	45

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ Yes ☐ No

WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

If all four points lie above the appropriate line, then the warrant is satisfied.

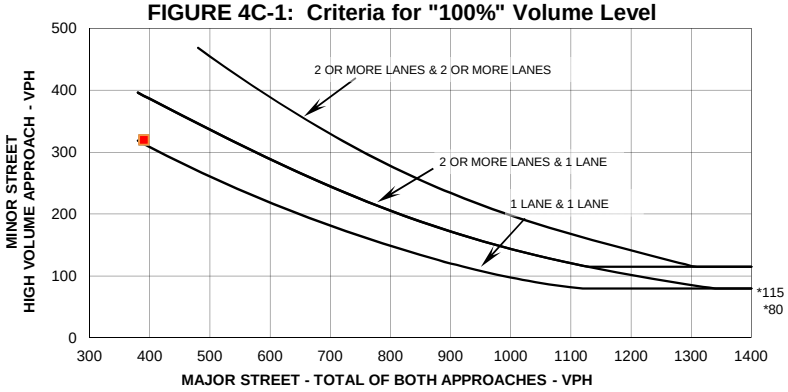
Applicable: ☑ Yes ☐ No
Satisfied: ☐ Yes ☑ No

Plot four volume combinations on the applicable figure below.

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street
3:00 PM	240	197
4:00 PM	390	320
5:00 PM	390	320
6:00 PM	240	197

FIGURE 4C-1: Criteria for "100%" Volume Level



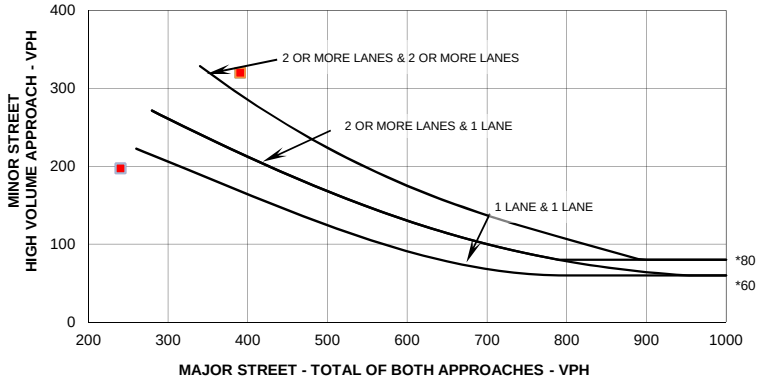
** Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 80 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street
3:00 PM	240	197
4:00 PM	390	320
5:00 PM	390	320
6:00 PM	240	197

FIGURE 4C-2: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



** Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 60 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Kuna	Engineer:	R Beckman
County:		Date:	September 24, 2018
District:			

Major Street:	Locust Grove	Lanes:	1	Major Approach Speed:	50
Minor Street:	Hubbard Rd	Lanes:	1	Minor Approach Speed:	45

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ 70% ☐ 100%

WARRANT 3 - PEAK HOUR

*If all three criteria are fulfilled **or** the plotted point lies above the appropriate line, then the warrant is satisfied.*

Applicable: ☐ Yes ☑ No
Satisfied: ☐ Yes ☐ No

Unusual condition justifying use of warrant:

Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.
5:00 PM	390	320

Criteria

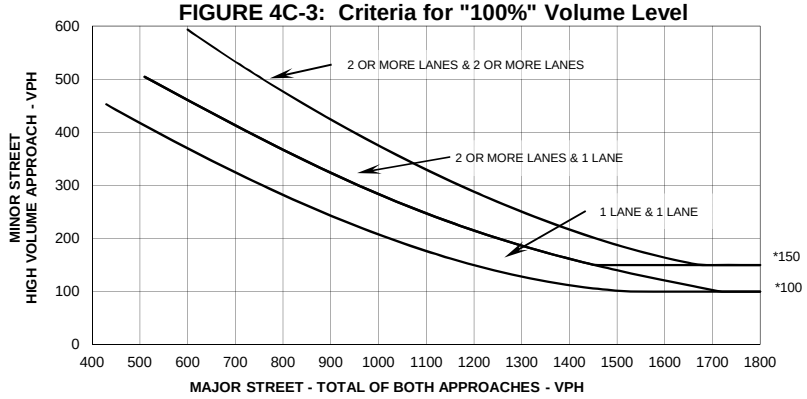
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes ☑ No	

2. Volume on Minor Approach One-Direction *(vehicles per hour)		
Approach Lanes	1	2
Volume Criteria*	100	150
Volume*		
Fulfilled?:	☐ Yes ☑ No	

3. Total Intersection Entering Volume *(vehicles per hour)		
No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		
Fulfilled?:	☑ Yes ☐ No	

Plot volume combination on the applicable figure below.

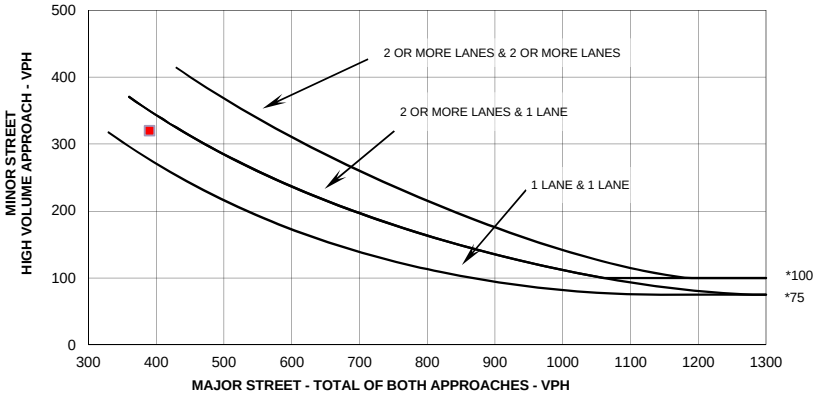
FIGURE 4C-3: Criteria for "100%" Volume Level



** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-4: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Kuna	Engineer:	R Beckman
County:		Date:	September 24, 2018
District:			

Major Street:	Locust Grove	Lanes:	1	Major Approach Speed:	50
Minor Street:	Hubbard Rd	Lanes:	1	Minor Approach Speed:	45

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ 70% ☐ 100%

WARRANT 4 - PEDESTRIAN VOLUME

For each of any 4 hours of an average day, the plotted points lie above the appropriate line, then the warrant is satisfied.

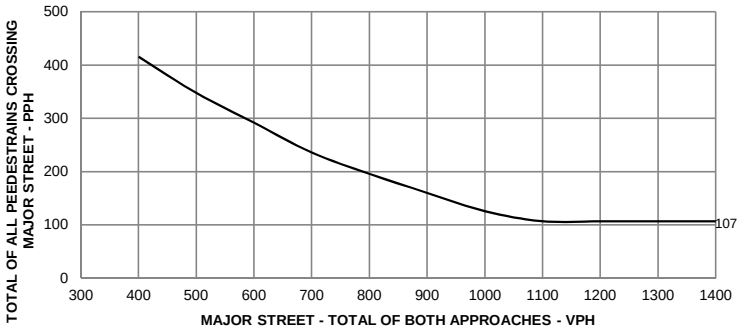
Applicable: ☐ Yes ☑ No
Satisfied: ☐ Yes ☐ No

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total

Plot four volume combinations on the applicable figure below.

Figure 4C-5. Criteria for "100%" Volume Level

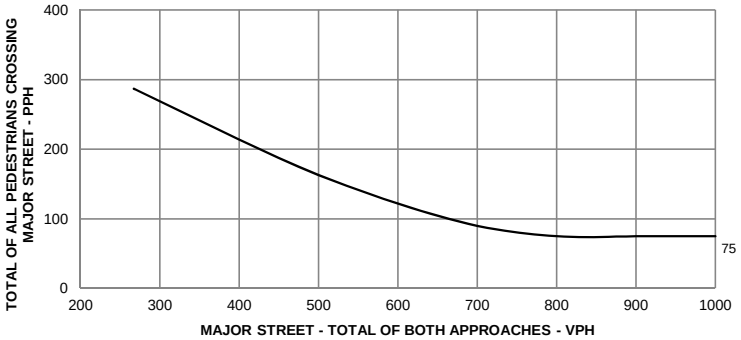


** Note: 107 pph applies as the lower threshold volume*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total

Figure 4C-6 Criteria for "70%" Volume Level



** Note: 75 pph applies as the lower threshold volume*

WARRANT 4 - PEDESTRIAN VOLUME

For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point falls above the appropriate line, then the warrant is satisfied.

Applicable: ☐ Yes ☐ No

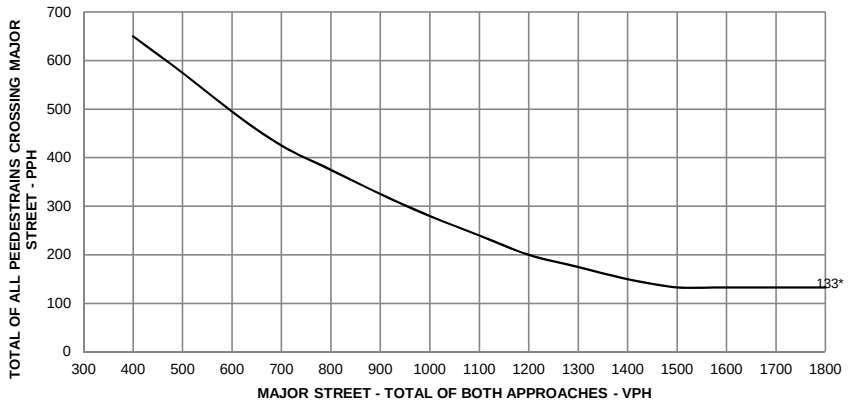
Satisfied: ☐ Yes ☐ No

Plot one volume combination on the applicable figure below.

100% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total

Figure 4C-7. Criteria for "100%" Volume Level - Peak Hour

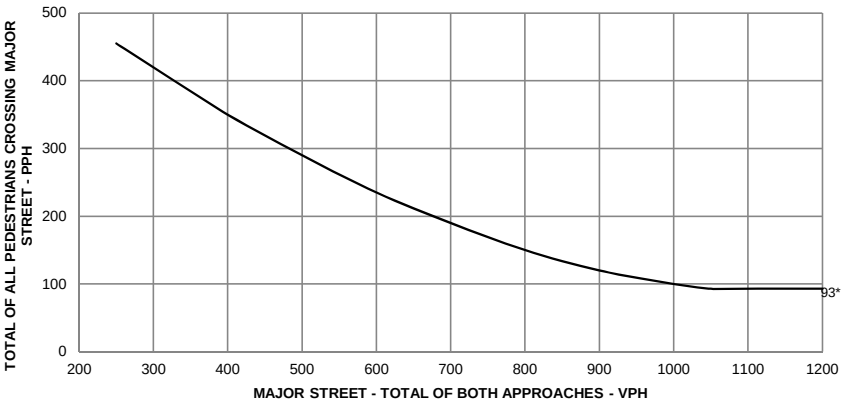


** Note: 133 pph applies as the lower threshold volume*

70% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total

Figure 4C-8 Criteria for "70%" Volume Level - Peak Hour



** Note: 93 pph applies as the lower threshold volume*

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Kuna**	Engineer:	**R Beckman**
County:		Date:	**September 24, 2018**
District:			

Major Street:	**Locust Grove**	Lanes:	**1**	Major Approach Speed:	**50**
Minor Street:	**Hubbard Rd**	Lanes:	**1**	Minor Approach Speed:	**45**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 5 - SCHOOL CROSSING

Record hours where criteria are fulfilled and the corresponding volume or gap frequency in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☐ No

Criteria				Fulfilled? Yes	Fulfilled? No
1. There are a minimum of 20 students crossing the major street during the highest crossing hour.	Students:	Hour:			
2. There are fewer adequate gaps in the major street traffic stream during the period when the children are using the established school crossing than the number of minutes in the same period.		Minutes:	Gaps:		
3. The nearest traffic signal along the major street is located more than 300 ft. (90 m) away, or the nearest signal is within 300 ft. (90 m) but the proposed traffic signal will not restrict the progressive movement of traffic.					

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Kuna**	Engineer:	**R Beckman**
County:		Date:	**September 24, 2018**
District:			

Major Street:	**Locust Grove**	Lanes:	**1**	Major Approach Speed:	**50**
Minor Street:	**Hubbard Rd**	Lanes:	**1**	Minor Approach Speed:	**45**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 6 - COORDINATED SIGNAL SYSTEM

Indicate if the criteria are fulfilled in the boxes provided. The warrant is satisfied if either criterion is fulfilled. This warrant should not be applied when the resulting signal spacing would be less than 300 m (1,000 ft.).

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☑ No

Criteria	Fulfilled? Yes	Fulfilled? No
1. On a one-way street or a street that has traffic predominately in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.		
2. On a two-way street, adjacent signals do not provide the necessary degree of platooning, and the proposed and adjacent signals will collectively provide a progressive operation.		

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Kuna**	Engineer:	**R Beckman**
County:		Date:	**September 24, 2018**
District:			

Major Street:	**Locust Grove**	Lanes:	**1**	Major Approach Speed:	**50**
Minor Street:	**Hubbard Rd**	Lanes:	**1**	Minor Approach Speed:	**45**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 7 - CRASH EXPERIENCE

Record hours where criteria are fulfilled, the corresponding volume, and other information in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☐ No

Criteria		Hour	Volume		Met?		Fulfilled?	
			Major	Minor	Yes	No	Yes	No
1. One of the warrants to the right is met.	Warrant 1, Condition A (80% satisfied)							
	Warrant 1, Condition B (80% satisfied)							
	Warrant 4, Pedestrian Volume at 80% of volume requirements: # ped/hr for four (4) hours or # ped/hr for one (1) hour.							
2. Adequate trial of other remedial measure has failed to reduce crash frequency.		Measure tried:						
3. Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-month period.		Observed Crash Types:	Number of crashes per 12 months:					

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Kuna**	Engineer:	**R Beckman**
County:		Date:	**September 24, 2018**
District:			

Major Street:	**Locust Grove**	Lanes:	**1**	Major Approach Speed:	**50**
Minor Street:	**Hubbard Rd**	Lanes:	**1**	Minor Approach Speed:	**45**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 8 - ROADWAY NETWORK

Record hours where criteria are fulfilled, and the corresponding volume or other information in the boxes provided. The warrant is satisfied if at least one of the criteria is fulfilled and if all intersecting routes have one or more of the Major Route characteristics listed.

Applicable: ☐ Yes ☐ No

Satisfied: ☐ Yes ☐ No

Criteria								Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Both of the criteria to the right are met.	a. Total entering volume of at least 1,000 veh/hr during a typical weekday peak hour.		Entering Volume:								
	b. Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.	Warrant:	1	2	3						
		Satisfied?:									
2. Total entering volume at least 1,000 veh/hr for each of any 5 hrs of a non-normal business day (Sat. or Sun.)							← Hour				
							←Volume				

Characteristics of Major Routes		Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Part of the street or highway system that serves as the principal roadway network for through traffic flow.	Major Street:				
	Minor Street:				
2. Rural or suburban highway outside of, entering, or traversing a city.	Major Street:				
	Minor Street:				
3. Appears as a major route on an official plan.	Major Street:				
	Minor Street:				

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Kuna	Engineer:	R Beckman
County:		Date:	September 24, 2018
District:			

Major Street:	Locust Grove	Lanes:	1	Major Approach Speed:	50
Minor Street:	Hubbard Rd	Lanes:	1	Minor Approach Speed:	45

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Approach Lane Criteria

1. How many approach lanes are there at the track crossing? ☐ 1 ☐ 2 or

If there is 1 lane, use Figure 4C-9 and if there are 2 or more, use Figure 4C-10. ☐ Fig 4C-9 ☐ Fig 4C-10

WARRANT 9 - INTERSECTION NEAR A GRADE CROSSING

This signal warrant should be applied only after adequate consideration has been given to other alternatives or after a trial of an alternative has failed to alleviate the safety concerns associated with the grade crossing.

Indicate if both criteria are fulfilled in the boxes provided. The warrant is satisfied if both criteria are met.

Applicable: ☐ Yes ☐ No

Satisfied: ☐ Yes ☐ No

Criteria	Fulfilled? Yes	Fulfilled? No
1. A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach; and	☐	☐
2. During the highest traffic volume hour during which the rail uses the crossing, the plotted point falls above the applicable curve for the existing combination of approach lanes over the track and the distance D (clear storage distance).	☐	☐

Use the following tables (4C-2, 4C-3, and 4C-4 to appropriately adjust the minor-street approach volume).

Inputs		Adjustment Factors from Tables
Occurrences of Rail traffic per day		
% of High Occupancy Buses on Minor-Street Approach		1.00
Enter D (feet)		
% of Tractor-Trailer Trucks on Minor-Street Approach		0.50

Table 4C-2. Adjustment Factor for Daily Frequency of Rail Traffic

Rail Traffic per Day	Adjustment Factor
1	0.67
2	0.91
3 to 5	1.00
6 to 8	1.18
9 to 11	1.25
12 or more	1.33

Table 4C-3. Adjustment Factor for Percentage of High-Occupancy Buses

% of High-Occupancy Buses* on Minor Street Approach	Adjustment Factor
0%	1.00
2%	1.09
4%	1.19
6% or more	1.32

* A high-occupancy bus is defined as a bus occupied by at least 20 people

Table 4C-4. Adjustment Factor for Percentage of Tractor-Trailer Trucks

% of Tractor-Trailer Trucks on Minor-Street Approach	Adjustment Factor	
	D less than 70 feet	D of 70 feet or more
0% to 2.5%	0.50	0.50
2.6% to 7.5%	0.75	0.75
7.6% to 12.5%	1.00	1.00
12.6% to 17.5%	2.30	1.15
17.6% to 22.5%	2.70	1.35
22.6% to 27.5%	3.28	1.64
More than 27.5%	4.18	2.09

Input the major and minor street volumes before adjustment factors are applied

1 Approach Lane		

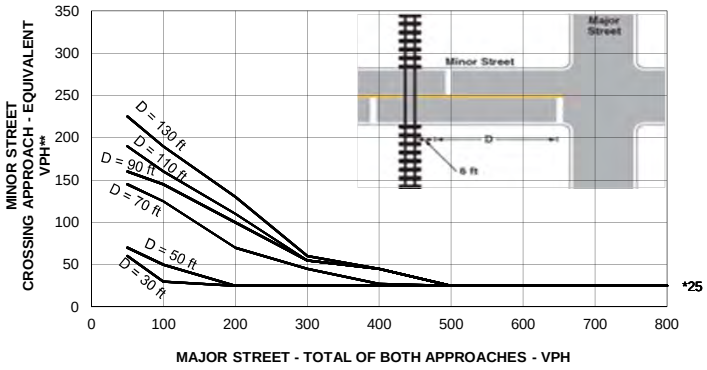
D (ft) Major Vol. Minor Vol.

After adjustment factors are applied

1 Approach Lane w/Factors		

D (ft) Major Vol. Minor Vol.

FIGURE 4C-9: Criteria for 1 Approach Lane at the Track Crossing



** Note: 25 vph applies as the lower threshold volume*

** *Note: VPH after applying the adjustment factors in Tables 4C-2, 4C, and or 4C-4, if appropriate*

Input D and the major and minor street volumes before adjustment factors are applied

2 or more Approach Lanes		

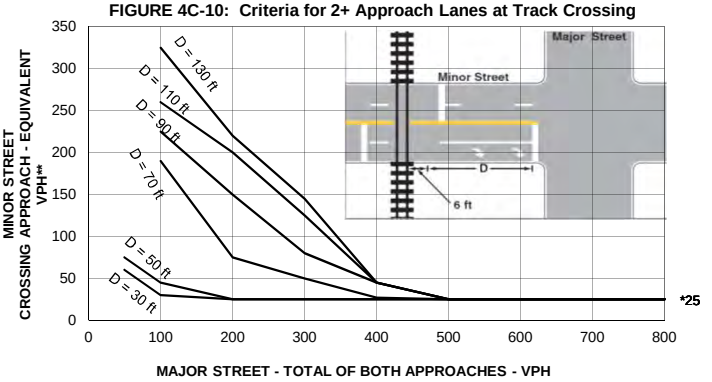
D (ft) Major Vol. Minor Vol.

After adjustment factors are applied

2+ Approach Lane w/Factors		

D (ft) Major Vol. Minor Vol.

FIGURE 4C-10: Criteria for 2+ Approach Lanes at Track Crossing



** Note: 25 vph applies as the lower threshold volume*

** *Note: VPH after applying the adjustment factors in Tables 4C-2, 4C, and or 4C-4, if appropriate*

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Kuna**	Engineer:	**R Beckman**
County:		Date:	**September 24, 2018**
District:			

Major Street:	**Locust Grove**	Lanes:	**1**	Major Approach Speed:	**50**
Minor Street:	**Hubbard Rd**	Lanes:	**1**	Minor Approach Speed:	**45**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

CONCLUSIONS

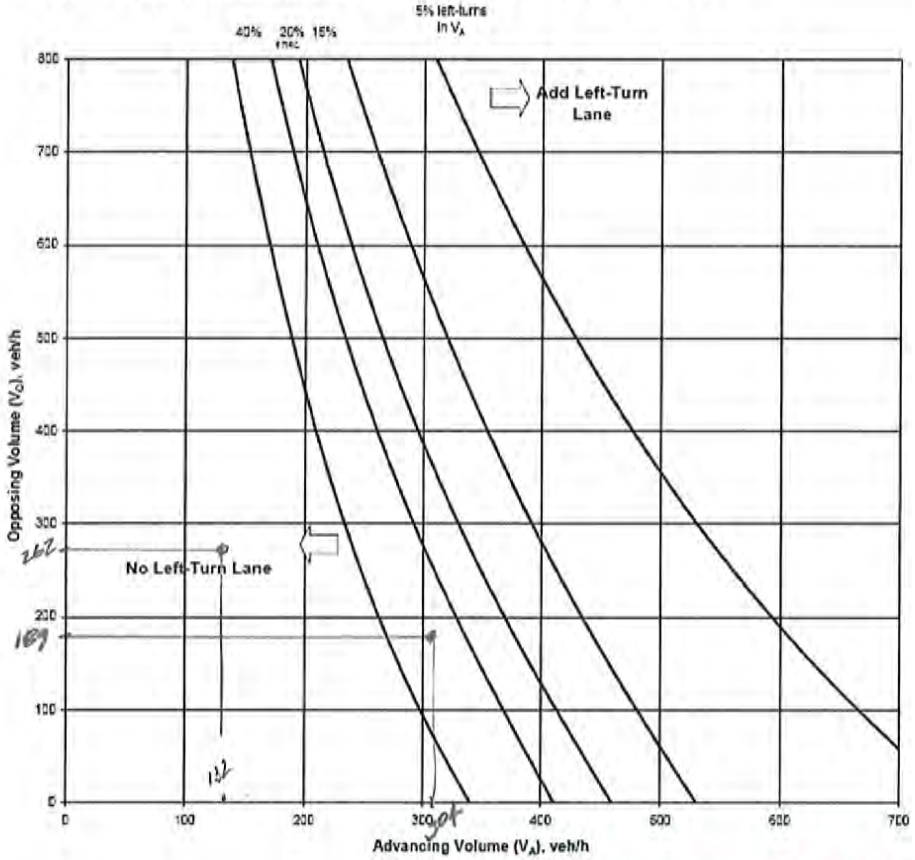
Remarks: **Warrants met for 2025 Background Traffic Volumes**

WARRANTS SATISFIED:

☑ Warrant 1	☐ Not Applicable
☑ Warrant 2	☐ Not Applicable
☐ Warrant 3	☑ Not Applicable
☐ Warrant 4	☑ Not Applicable
☐ Warrant 5	☑ Not Applicable
☐ Warrant 6	☑ Not Applicable
☐ Warrant 7	☑ Not Applicable
☐ Warrant 8	☑ Not Applicable
☐ Warrant 9	☑ Not Applicable

HUBBARD RD

Figure 2 – Left-Turn Lane Guidelines for Two-Lane Roads, 45 mph



NO LEFT TURN NEED ⇒ HUBBARD RD

The following data are required:

1. Opposing Volume (veh/hr) - VO - The opposing volume is to include only the right-turn and through movements in the opposite direction of the left turning vehicle.

2. Advancing Volume (veh/hr) - VA - The advancing volume is to include the right-turn, left-turn and through movements in the same direction as the left turning vehicle.

3. Operating Speed (mph) - The greatest of anticipated operating speed, measured 85th percentile speed or posted speed.

4. Percentage of left turns in VA $24/304 = 7.9\%$

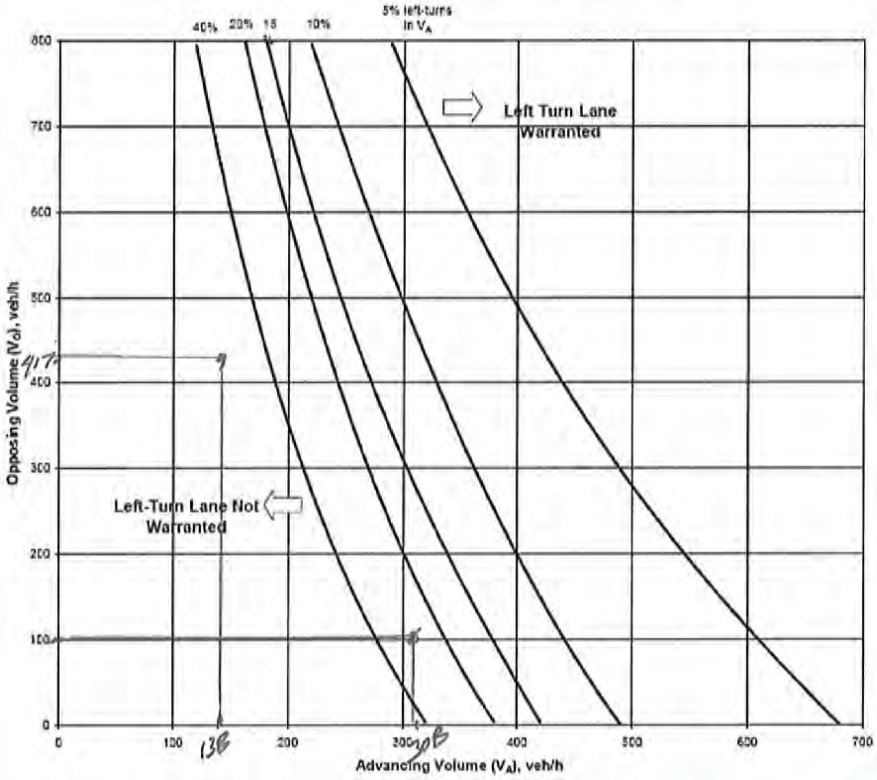
Left-turn lane is not needed for left-turn volume less than 10 vph. However, criteria other than volume, such as crash experience, may be used to justify a left-turn lane.

The appropriate trend line is identified on the basis of the percentage of left-turns in the advancing volume, rounded up to the nearest percentage trend line. If the advancing and opposing volume combination intersects above or to the right of this trend line, a left-turn lane is appropriate.

Source: NCHRP Report 279 and 457

LOCUST GROVE

Figure 3 – Left-Turn Lane Guidelines for Two-Lane Roads, 50 mph



The following data are required: NO LEFT TURN REQ'D @ LOCUST GROVE

1. Opposing Volume (veh/hr) - VO - The opposing volume is to include only the right-turn and through movements in the opposite direction of the left-turning vehicle.

2. Advancing Volume (veh/hr) - VA - The advancing volume is to include the right-turn, left-turn and through movements in the same direction as the left-turning vehicle.

3. Operating Speed (mph) - The greatest of anticipated operating speed, measured 85th percentile speed or posted speed.

4. Percentage of left-turns in VA 3/308 = 1%

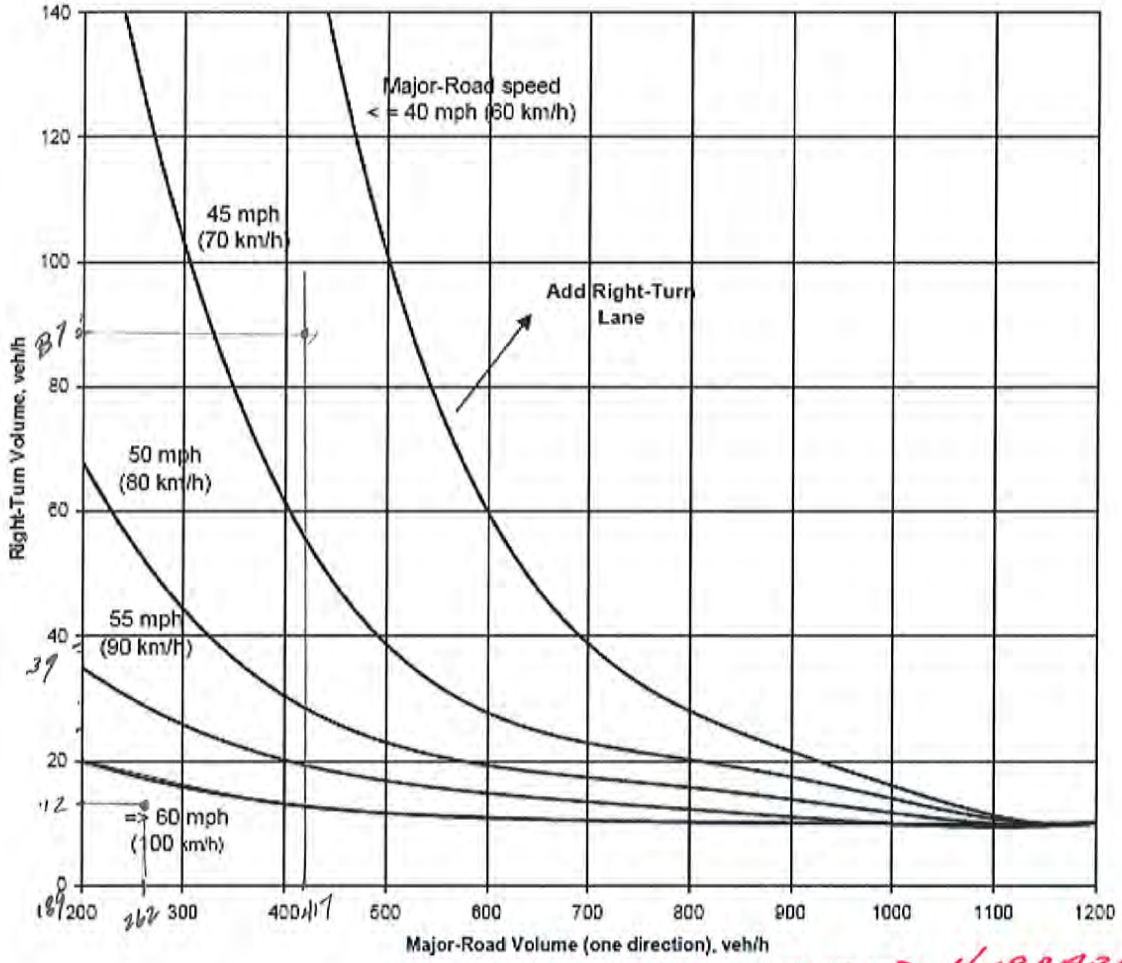
Left-turn lane is not needed for left-turn volume less than 10 vph. However, criteria other than volume, such as crash experience, may be used to justify a left-turn lane.

The appropriate trend line is identified on the basis of the percentage of left-turns in the advancing volume, rounded up to the nearest percentage trend line. If the advancing and opposing volume combination intersects above or to the right of this trend line, a left-turn lane is appropriate.

Source: NCHRP Report 279 and 457

HUBBARD 45mph
LOCUST GROVE 50

Figure 6 – Right-Turn Lane Guidelines for Two-Lane Roadways



NO RIGHT TURN LANE ⇒ HUBBARD RD

RIGHT TURN LANE NEEDED (PM) ⇒ LOCUST GROVE

The following data are required:

1. Advancing Volume (veh/hr) - The advancing volume is to include the right-turn, left-turn and through movements in the same direction as the right-turning vehicle.

2. Right-Turning Volume (veh/hr) - The right-turning volume is the number of advancing vehicles turning right.

3. Operating Speed (mph) - The greatest of anticipated operating speed, measured 85th percentile speed or posted speed.

Note: Right-turn lane is not needed for right-turn volume less than 10 vph. However, criteria other than volume, e.g. crash experience, may be used to justify a right-turn lane.

If the combination of major road approach volume and right-turn volume intersects above or to the right of the speed trend line corresponding to the major road operating speed, then a right-turn lane is appropriate.

Source: NCHRP Report 279 and 457

WHPacific

October 1, 2018

Ms. Wendy Howell, Director
Kuna Planning and Zoning Department
751 W. 4th Street
Kuna, Idaho 83634

Subject: Ledgestone Subdivision – Hubbard Road, between Meridian and Locust Grove Roads
Applications for annexation with zoning and preliminary plat

Dear Ms. Howell:

On behalf my client, Trilogy Development, Inc., please accept the attached applications to annex the subject property into the City of Kuna and to subdivide the property into 253 residential lots and 44 4 common lots. The property is located south of Hubbard Road and Mason Creek, between Meridian Road/Hwy 69 and Locust Grove Road. The subdivision property totals 60.85 acres and is currently located in Ada County with a zoning designation of RR. We are requesting annexation with a zoning designation of R-8. This residential zone meets the Kuna Comprehensive Planning designation for this area as *Medium Density Residential*. According to the Kuna Comp Plan: *this designation describes areas where residential development densities generally range from four to seven units per acre. These areas will be made up of single-family homes, but may include townhomes, row houses, duplexes and other types of multi-family land uses.* It is important to note that this zoning designation affords the flexibility and creativity to provide a mix of lot sizes and home projects, with a density that is still at the low end of the Comprehensive Plan, 4.16 du/acre.

The property is currently used as farm land. To the north of the property is Hubbard Road and the Patagonia Subdivision, which the Comprehensive Plan designates as Mixed Use. The agricultural land to the east is shown on Kuna's Future Land Use Map as Professional Office. The property to the south is expected to be developed with additional Medium Density Residential uses and the land to the east, across Locus Grove Road, is shown as Low Density Residential in the Comprehensive Plan. The Ledgestone Subdivision will be complementary to all of the surrounding existing and proposed land uses.

Preliminary Plat

Two hundred lots in Ledgestone Subdivision have been designed to be larger than the zoning regulations and dimensional standards for the R-8 zone in the Kuna City Code. These lots are all significantly larger than the minimum of the requested zone, with sizes ranging from 5476 sf to 10,681 sf, and an average size of 6822 sf. These 200 standard lots have front yard setbacks of 20', rear yard setbacks at 15', interior side yards are 5' and street side yards are 20', which are typical for all Kuna residential zones.

We are excited to introduce a new alley loaded home design to Kuna. These single family detached homes will face the street; however, the garages will be accessed via an ACHD maintained, public alley. This design provide a charming streetscape and a home product that is popular with young professionals and active seniors, because there is little-to-no yard to maintain. These lots are typically 40' wide and

Exhibit A2b

110' feet deep for a total lot area of 4400 sf. To provide the appropriate home design on these lots we are requesting a Director's exception to allow a 15' setback to the living space, a 20' setback to the garage and a lot coverage of 52%. The Kuna code allows for the Director to modify some dimensional requirements with the Planning and Zoning Commission's concurrence, provided that there are not building or fire code issues. Our requested modifications do not impact building or fire code requirements.

Although the R-8 zone would allow up to eight dwelling units per acre, Ledgestone Subdivision will be built out at just half of that density or 4.15 du/acre. The local streets and open spaces will take up a large portion of the property. In fact, 36.74 acres (60%) of the subdivision will be used for buildable lots and the remaining 24.11 acres (40%) of the 60.85 acre property are used for street right-of-way and open space/buffers.

A Record of Survey has been submitted to the Ada County Surveyor to adjust the southern lot line as shown on the Preliminary Plat. The ROS will be approved and recorded prior to the approval of the Ledgestone Subdivision applications. If fact, we expect the ROS to be approved and recorded prior to the public hearings for the Ledgestone project.

Buffers and Open Space

The development of Ledgestone Subdivision will include the construction of over 2000 linear feet of public pathway along the south side of Mason Creek. This path is a part of the regional pathway system that is included in Kuna's Recreation and Pathways Master Plan Map. The multi-use pathway will be constructed by the developer and dedicated to the City upon completion.

A centrally located park will include a tot lot, gazebo and a popular half –basketball court, along with open play areas. Five additional open spaces lots will be landscaped and will provide passive play areas and neighborhood meeting spots. Pathways have been strategically located to provide good pedestrian connectivity to the park and to the Mason Creek pathway.

The landscape plan also shows additional open space and landscaping at the end caps of most blocks, adding shade and providing an attractive streetscape

The Mason Creek pathway area, plus parks, pathways and landscaped open areas add up to 6.2 acres, or over 10% pf the project area. If we add in the landscaped buffers and end caps, the total amount of landscaped common area is over 8.5 acres or 14% of the site. The buffers include a 25' landscape buffer along Hubbard Road, Locust Grove Road and Stroebel Road. Detached 8' sidewalks are located in these buffer areas.

Streets/ and Utilities

The main entry into Ledgestone will be taken from the new mid-mile collector, Stroebel Road. In addition, Lot 14, Block 1 will constructed to serve as a temporary access to the subdivision from Hubbard Road. Once the connection to Locust Grove Road is completed, Lot 14 will become a building lot. All local streets will be constructed to Kuna's standard of a 36' b/c-b/c street cross section in a 50' wide right-of-way. The public alleys will be constructed to ACHD standards.

We have worked with ACHD to provide one stub street to the northeast that will eventually cross Mason Creek, should the adjacent property be developed. There is one stub street to south, Moonshadow Avenue. We have designed Rio Villegas Street at Locust Grove Road to run along the south property boundary. This will allow a flexibility in designing a new street connection when the property to the south develops.

A Traffic Impact Study has recently been completed that reflects the newly installed traffic signal at Hubbard Road and Hwy 69/Meridian Road. The TIS will be reviewed by ACHD and ITD.

An 18" sewer main will be extended to and through the site from Hubbard Road to Locust Grove Road, as will a 12" water main. Pressurized irrigation will be provide to each lot from the Patagonia irrigation pond.

The existing FEMA flood hazard area for Mason Creek is shown on the plat. The project engineer is currently completing a model of the regulated 100-year flood for Mason Creek adjacent to the property. This is the same type of flood study that was completed for the Patagonia Subdivision downstream of Ledgestone. That previous study showed that the 100-year flood plain is contained entirely within the banks of Mason Creek. We expect that the study for this upstream area of Mason Creek in the Ledgestone Subdivision will have similar results. Upon approval of the study, the project engineer will file a Letter of Map Revision (LOMR) to remove the affected properties from the flood hazard designation.

Neighborhood Meeting

A neighborhood meeting was held on the site on Monday, July 9, 2018, at 6 pm. The neighborhood meeting notice and sign-up sheet are included in our application package. Due to the development of Patagonia Subdivision to the north, most neighbors were aware that this property would be developed in the not-too-distant future. There were questions concerned the schedule to begin construction and the time table for buildout.

We are pleased to submit the applications and support materials to annex Ledgestone Subdivision into Kuna and to provide an attractive mix of lot sizes and homes, especially the alley loaded single family home product. We look forward to working with you and your staff on the approval process. And, as always, do not hesitate to contact me if you have questions about the project or the application.

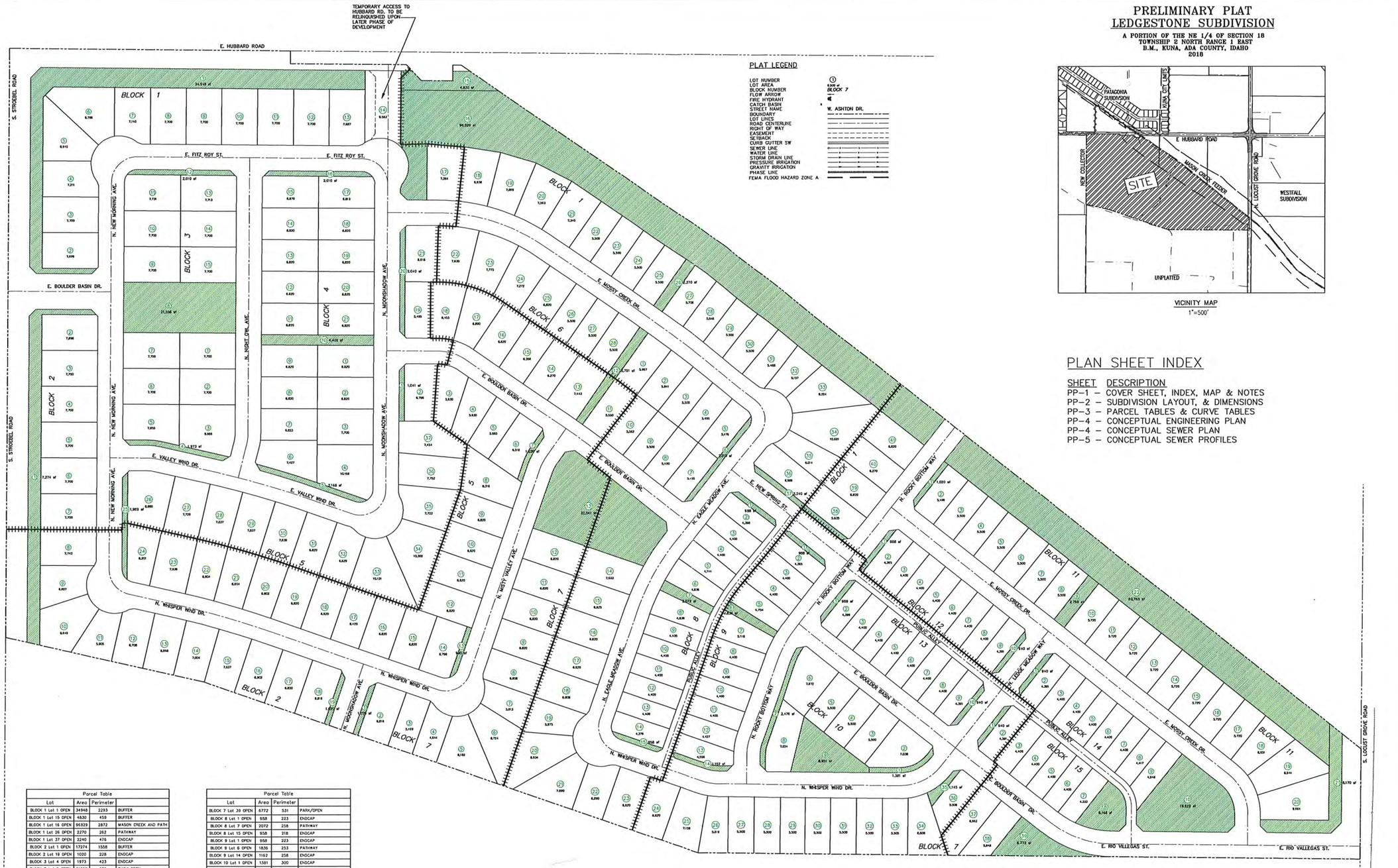
Sincerely,

Jane Suggs

cc: Shawn Brownlee

PRELIMINARY PLAT
LEDGESTONE SUBDIVISION

A PORTION OF THE NE 1/4 OF SECTION 18
TOWNSHIP 3 NORTH RANGE 1 EAST
B.M., KUNA, ADA COUNTY, IDAHO
2018



PLAT LEGEND

LOT NUMBER
LOT AREA
BLOCK NUMBER
FLOW ARROW
FIRE HYDRANT
CATCH BASIN
STREET NAME
BOUNDARY
LOT LINES
ROAD CENTERLINE
RIGHT OF WAY
EASEMENT
SETBACK
CURB GUTTER SW
SEWER LINE
WATER LINE
STORM DRAIN LINE
PRESSURE IRRIGATION
GRAVITY IRRIGATION
PHASE LINE
FEMA FLOOD HAZARD ZONE A

VICINITY MAP
1"=500'

PLAN SHEET INDEX

SHEET	DESCRIPTION
PP-1	COVER SHEET, INDEX, MAP & NOTES
PP-2	SUBDIVISION LAYOUT, & DIMENSIONS
PP-3	PARCEL TABLES & CURVE TABLES
PP-4	CONCEPTUAL ENGINEERING PLAN
PP-4	CONCEPTUAL SEWER PLAN
PP-5	CONCEPTUAL SEWER PROFILES

Parcel Table			
Lot	Area	Perimeter	
BLOCK 1 Lot 1 OPEN	34948	2293	BUFFER
BLOCK 1 Lot 15 OPEN	4830	459	BUFFER
BLOCK 1 Lot 16 OPEN	96829	2872	MASON CREEK AND PATH
BLOCK 1 Lot 26 OPEN	2270	262	PATHWAY
BLOCK 1 Lot 27 OPEN	2240	476	ENDCAP
BLOCK 2 Lot 1 OPEN	17274	1558	BUFFER
BLOCK 2 Lot 19 OPEN	1020	228	ENDCAP
BLOCK 3 Lot 4 OPEN	1973	423	ENDCAP
BLOCK 3 Lot 8 OPEN	21506	535	PARK OPEN
BLOCK 3 Lot 12 OPEN	2010	431	ENDCAP
BLOCK 4 Lot 5 OPEN	2168	463	ENDCAP
BLOCK 4 Lot 10 OPEN	4400	480	PATHWAY
BLOCK 4 Lot 16 OPEN	2010	431	ENDCAP
BLOCK 5 Lot 1 OPEN	1041	232	ENDCAP
BLOCK 5 Lot 7 OPEN	1036	232	ENDCAP
BLOCK 5 Lot 13 OPEN	590	223	ENDCAP
BLOCK 5 Lot 25 OPEN	1989	427	ENDCAP
BLOCK 6 Lot 6 OPEN	2010	431	ENDCAP
BLOCK 6 Lot 12 OPEN	3791	474	PATHWAY
BLOCK 6 Lot 20 OPEN	2040	436	ENDCAP
BLOCK 7 Lot 1 OPEN	1020	228	ENDCAP
BLOCK 7 Lot 13 OPEN	32341	736	PARK/OPEN
BLOCK 7 Lot 35 OPEN	1145	201	ENDCAP

Parcel Table			
Lot	Area	Perimeter	
BLOCK 7 Lot 39 OPEN	6772	531	PARK/OPEN
BLOCK 8 Lot 1 OPEN	958	223	ENDCAP
BLOCK 8 Lot 7 OPEN	2072	258	PATHWAY
BLOCK 8 Lot 15 OPEN	958	218	ENDCAP
BLOCK 9 Lot 1 OPEN	958	223	ENDCAP
BLOCK 9 Lot 6 OPEN	1836	253	PATHWAY
BLOCK 9 Lot 14 OPEN	1162	258	ENDCAP
BLOCK 10 Lot 1 OPEN	1381	300	ENDCAP
BLOCK 10 Lot 7 OPEN	2476	523	ENDCAP
BLOCK 10 Lot 9 OPEN	8951	436	PARK/OPEN
BLOCK 11 Lot 1 OPEN	1020	228	ENDCAP
BLOCK 11 Lot 9 OPEN	2798	271	PATHWAY
BLOCK 11 Lot 21 OPEN	8170	714	BUFFER
BLOCK 11 Lot 22 OPEN	60765	2017	MASON CREEK AND PATH
BLOCK 12 Lot 1 OPEN	958	223	ENDCAP
BLOCK 12 Lot 10 OPEN	940	216	ENDCAP
BLOCK 13 Lot 1 OPEN	958	223	ENDCAP
BLOCK 13 Lot 10 OPEN	940	216	ENDCAP
BLOCK 14 Lot 1 OPEN	940	216	ENDCAP
BLOCK 14 Lot 10 OPEN	19622	556	PARK/OPEN
BLOCK 15 Lot 1 OPEN	940	216	ENDCAP
BLOCK 15 Lot 8 OPEN	6168	313	PARK/OPEN

NOTES:
1. ALL LOT LINES COMMON TO A PUBLIC RIGHT OF WAY HAVE A 10' UTILITY EASEMENT.
2. A 10' UTILITY EASEMENT IS LOCATED ADJACENT TO THE EXTERIOR BOUNDARY.
3. ALL SIDE YARD LOT LINES HAVE A 5' DRAINAGE & IRRIGATION EASEMENT ON EACH SIDE OF THE LOT LINE UNLESS OTHERWISE SHOWN.
4. MUNICIPAL SEWER AND WATER SERVICES SHALL BE PROVIDED TO EACH LOT.
5. DRAINAGE FOR THE PUBLIC STREETS WILL BE COLLECTED IN STORM DRAIN CATCH BASINS AND ROUTED THROUGH SAND AND GREASE TRAPS TO SEEPAGE BEDS OR STORM DRAINAGE PONDS.
6. ALL LOTS WITHIN THIS SUBDIVISION ARE SINGLE FAMILY RESIDENTIAL LOTS, WITH THE EXCEPTION OF COMMON LOTS AS SHOWN WHICH ARE COMMON AREA LOTS ALL OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION. ALL SAID COMMON LOTS SHALL HAVE A BLANKET UTILITY AND DRAINAGE EASEMENT.
7. THIS SUBDIVISION IS SUBJECT TO COMPLIANCE WITH IDAHO CODE SECTION 31-3805(1)(h) CONCERNING IRRIGATION WATER. PRESSURE IRRIGATION WILL BE SUPPLIED TO ALL LOTS IN THIS SUBDIVISION FROM CITY OF KUNA MUNICIPAL IRRIGATION SYSTEM. EXISTING SHARES AND WATER RIGHTS SHALL BE TRANSFERRED TO THE CITY OF KUNA.
8. ALL EXISTING BUILDINGS ON SITE TO BE REMOVED.
9. THE SUBJECT PROPERTY FALLS WITHIN A FEMA FLOOD HAZARD ZONE AS SHOWN ALONG THE MASON CREEK. REFERENCE FIRM PANEL 16001C0250J EFFECTIVE OCTOBER 2nd, 2013.
10. ALL OF LOT 14, BLOCK 1 CONTAINS A TEMPORARY ACHD RIGHT-OF-WAY EASEMENT. SAID EASEMENT IS TO BE VACATED AND THE ROADWAY REMOVED UPON LATER PHASE DEVELOPMENT.

DEVELOPMENT FEATURES

ACREAGE
TOTAL PARCEL - 60.85 ACRES
TOTAL LOTS - 295
TOTAL DWELLING UNITS - 253
BUILDABLE LOTS - SF RESIDENTIAL - 253
COMMON LOTS - 45
DENSITY DUACRE - 4.16
COMMON AREA - 8.51 ACRES - 14.0%
USEABLE OPEN SPACE: 6.2 - ACRES 10.2%

ZONING
EXISTING - RR
PROPOSED - R-8

SEWAGE DISPOSAL
KUNA CITY SEWER

WATER SUPPLY
KUNA CITY WATER

CITY
KUNA CITY

SCHOOL DISTRICT
KUNA

FIRE DISTRICT
KUNA

IRRIGATION DISTRICT
NEW YORK IRRIGATION DISTRICT
CITY OF KUNA WILL SUPPLY PI

OWNERS
TJ JOHNSON
2425 N LOCUST GROVE ROAD
KUNA, ID 83634

DEVELOPER
TRILOGY DEVELOPMENT, INC
5639 W CABLE CAR ST
BOISE, ID 83709

ENGINEER
DAVID A. BAILEY, P.E.
BAILEY ENGINEERING, INC
4242 N. BROOKSIDE LANE
BOISE, ID 83714

PLANNER/CONTACT
SHAWN BROWNLEE
TRILOGY DEVELOPMENT, INC
5639 W CABLE CAR ST
BOISE, ID 83709

60 0 30 60 120
SCALE IN FEET
1" = 60'

PROFESSIONAL ENGINEER REGISTERED 18527 STATE OF IDAHO DAVID A BAILEY

REVISED	
NO.	DATE DESCRIPTION

Bailey Engineering, Inc.
CIVIL ENGINEERING | PLANNING | CADD
4242 N. BROOKSIDE LANE, BOISE, ID 83714
TEL 208-658-0613
www.baileyengineers.com

DRAWN BY: DAB | CHECKED BY: DAVID A. BAILEY P.E. | PROJECT: C2018-008 | DATE: 10-01-2018

PRELIMINARY PLAT
LEDGESTONE SUBDIVISION
TRILOGY DEVELOPMENT, INC.
SHEET NO. PP-1

Exhibit A2M

TEMPORARY ACCESS TO HUBBARD RD. TO BE RELINQUISHED UPON LATER PHASE OF DEVELOPMENT

E. HUBBARD ROAD

S89°25'47"E 550.00'

S89°25'47"E 227.00'

FEMA FLOOD ZONE A

S. STROEBEL ROAD

N0°23'35"E 1151.71'

N7°18'25"W 398.64'

N7°52'25"W 990.00'

S55°34'36"E 631.36'

S51°36'36"E 1580.10'

S0°24'23"W 84.43'

N85°22'35"E 1329.94'

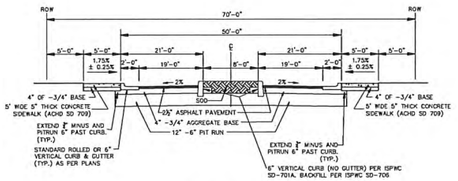
BOISE PROJECT BOARD OF CONTROL EASEMENT 25' SOUTH AND 37' NORTH FROM MASON CREEK CENTERLINE

PLAT LEGEND

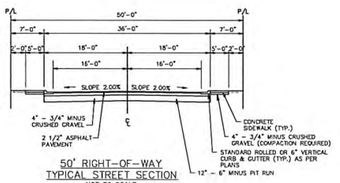
LOT NUMBER
LOT AREA
BLOCK NUMBER
FLOW ARROW
FIRE HYDRANT
CATCH BASIN
STREET NAME
BOUNDARY
LOT LINES
ROAD CENTERLINE
RIGHT OF WAY
EASEMENT
SETBACK
CURB GUTTER SW
SEWER LINE
WATER LINE
STORM DRAIN LINE
PRESSURE IRRIGATION
GRAVITY IRRIGATION
PHASE LINE
FEMA FLOOD HAZARD ZONE A

N. ASHTON DR.

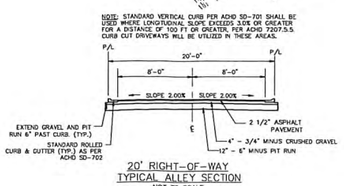
LINE TABLE		
LINE	LENGTH	BEARING
L1	25.00	N0°34'13"E
L2	31.00	S0°34'13"W
L3	15.51	S89°25'47"E
L4	42.45	N42°31'14"W
L5	62.00	N89°25'47"W
L6	44.88	N55°34'36"W



70' RIGHT-OF-WAY
TYPICAL STREET SECTION
NOT TO SCALE



50' RIGHT-OF-WAY
TYPICAL STREET SECTION
NOT TO SCALE



20' RIGHT-OF-WAY
TYPICAL ALLEY SECTION
NOT TO SCALE

60 0 30 60 120
SCALE IN FEET
1" = 60'

PROFESSIONAL ENGINEER REGISTERED CONSTRUCTION STATE OF IDAHO DAVID A. BAILEY 18506

REVISED		
NO.	DATE	DESCRIPTION

Bailey Engineering, Inc.
CIVIL ENGINEERING | PLANNING | CADD
4247N BROOKSIDE LANE
BOISE, ID 83714
TEL 208-938-0013
www.baileyengineers.com

DRAWN BY: JD/RG CHECKED BY: DAVID A. BAILEY P.E. PROJECT: C2018-008 DATE: 10-01-2018

PRELIMINARY PLAT
LEDGESTONE SUBDIVISION
TRILOGY DEVELOPMENT, INC.

SHEET PP-2

Parcel Table		
Lot	Area	Perimeter
BLOCK 1 Lot 1 OPEN	34948	2293
BLOCK 1 Lot 2	7695	358
BLOCK 1 Lot 3	7700	360
BLOCK 1 Lot 4	7211	348
BLOCK 1 Lot 5	8642	404
BLOCK 1 Lot 6	8705	417
BLOCK 1 Lot 7	7140	349
BLOCK 1 Lot 8	7700	360
BLOCK 1 Lot 9	7700	360
BLOCK 1 Lot 10	7700	360
BLOCK 1 Lot 11	7700	360
BLOCK 1 Lot 12	7700	360
BLOCK 1 Lot 13	7687	358
BLOCK 1 Lot 14	9563	448
BLOCK 1 Lot 15 OPEN	4830	459
BLOCK 1 Lot 16 OPEN	95323	2372
BLOCK 1 Lot 17	7264	352
BLOCK 1 Lot 18	8538	345
BLOCK 1 Lot 19	7069	350
BLOCK 1 Lot 20	7563	360
BLOCK 1 Lot 21	7340	354
BLOCK 1 Lot 22	5500	320
BLOCK 1 Lot 23	5500	320
BLOCK 1 Lot 24	5500	320
BLOCK 1 Lot 25	5500	320
BLOCK 1 Lot 26 OPEN	2270	262
BLOCK 1 Lot 27	5705	324
BLOCK 1 Lot 28	5648	323
BLOCK 1 Lot 29	5500	320
BLOCK 1 Lot 30	5500	320
BLOCK 1 Lot 31	5488	318
BLOCK 1 Lot 32	5157	313
BLOCK 1 Lot 33	8284	418
BLOCK 1 Lot 34	10681	447
BLOCK 1 Lot 35	6014	347
BLOCK 1 Lot 36	5939	362
BLOCK 1 Lot 37 OPEN	2240	476
BLOCK 1 Lot 38	5935	326
BLOCK 1 Lot 39	6520	344
BLOCK 1 Lot 40	6770	334
BLOCK 1 Lot 41	6520	344
BLOCK 2 Lot 1 OPEN	17274	1558
BLOCK 2 Lot 2	7695	358
BLOCK 2 Lot 3	7700	360
BLOCK 2 Lot 4	7700	360
BLOCK 2 Lot 5	7700	360
BLOCK 2 Lot 6	7700	360
BLOCK 2 Lot 7	7700	360
BLOCK 2 Lot 8	7743	358
BLOCK 2 Lot 9	6597	351
BLOCK 2 Lot 10	6649	370
BLOCK 2 Lot 11	5905	327
BLOCK 2 Lot 12	6708	335
BLOCK 2 Lot 13	6898	345
BLOCK 2 Lot 14	7004	346
BLOCK 2 Lot 15	7037	347
BLOCK 2 Lot 16	6902	345
BLOCK 2 Lot 17	6520	344
BLOCK 2 Lot 18	6518	342
BLOCK 2 Lot 19 OPEN	1020	228

Parcel Table		
Lot	Area	Perimeter
BLOCK 3 Lot 1	7700	360
BLOCK 3 Lot 2	7700	360
BLOCK 3 Lot 3	8935	396
BLOCK 3 Lot 4 OPEN	1973	423
BLOCK 3 Lot 5	7353	370
BLOCK 3 Lot 6	7700	360
BLOCK 3 Lot 7	7700	360
BLOCK 3 Lot 8 OPEN	21556	636
BLOCK 3 Lot 9	7700	360
BLOCK 3 Lot 10	7700	360
BLOCK 3 Lot 11	7731	357
BLOCK 3 Lot 12 OPEN	2012	431
BLOCK 3 Lot 13	7713	359
BLOCK 3 Lot 14	7700	360
BLOCK 3 Lot 15	7700	360
BLOCK 4 Lot 1	6520	344
BLOCK 4 Lot 2	6520	344
BLOCK 4 Lot 3	7700	360
BLOCK 4 Lot 4	10169	401
BLOCK 4 Lot 5 OPEN	2168	483
BLOCK 4 Lot 6	7427	355
BLOCK 4 Lot 7	6523	345
BLOCK 4 Lot 8	6520	344
BLOCK 4 Lot 9	6520	344
BLOCK 4 Lot 10 OPEN	4400	480
BLOCK 4 Lot 11	6520	344
BLOCK 4 Lot 12	6520	344
BLOCK 4 Lot 13	6520	344
BLOCK 4 Lot 14	6520	344
BLOCK 4 Lot 15	6370	343
BLOCK 4 Lot 16 OPEN	2012	431
BLOCK 4 Lot 17	6513	340
BLOCK 4 Lot 18	6520	344
BLOCK 4 Lot 19	6520	344
BLOCK 4 Lot 20	6520	344
BLOCK 4 Lot 21	6520	344
BLOCK 5 Lot 1 OPEN	1041	232
BLOCK 5 Lot 2	6795	344
BLOCK 5 Lot 3	5930	334
BLOCK 5 Lot 4	5930	333
BLOCK 5 Lot 5	5553	327
BLOCK 5 Lot 6	6519	348
BLOCK 5 Lot 7 OPEN	1036	232
BLOCK 5 Lot 8	8315	388
BLOCK 5 Lot 9	6520	344
BLOCK 5 Lot 10	6520	344
BLOCK 5 Lot 11	6520	344
BLOCK 5 Lot 12	6520	344
BLOCK 5 Lot 13 OPEN	590	223
BLOCK 5 Lot 14	6795	340
BLOCK 5 Lot 15	6520	344
BLOCK 5 Lot 16	6520	344
BLOCK 5 Lot 17	6420	337
BLOCK 5 Lot 18	6520	344
BLOCK 5 Lot 19	6520	344
BLOCK 5 Lot 20	6502	340
BLOCK 5 Lot 21	6604	340
BLOCK 5 Lot 22	6604	340
BLOCK 5 Lot 23	7935	364
BLOCK 5 Lot 24	6201	334

Parcel Table		
Lot	Area	Perimeter
BLOCK 5 Lot 25 OPEN	1559	427
BLOCK 5 Lot 26	6880	375
BLOCK 5 Lot 27	7723	361
BLOCK 5 Lot 28	7037	348
BLOCK 5 Lot 29	7037	348
BLOCK 5 Lot 30	7039	348
BLOCK 5 Lot 31	6820	344
BLOCK 5 Lot 32	6629	336
BLOCK 5 Lot 33	10121	444
BLOCK 5 Lot 34	13989	437
BLOCK 5 Lot 35	7722	365
BLOCK 5 Lot 36	7752	375
BLOCK 5 Lot 37	7454	367
BLOCK 6 Lot 1	5897	339
BLOCK 6 Lot 2	5841	327
BLOCK 6 Lot 3	5500	320
BLOCK 6 Lot 4	5490	320
BLOCK 6 Lot 5	5476	316
BLOCK 6 Lot 6 OPEN	2010	431
BLOCK 6 Lot 7	5495	318
BLOCK 6 Lot 8	5490	320
BLOCK 6 Lot 9	5500	320
BLOCK 6 Lot 10	5582	321
BLOCK 6 Lot 11	5500	321
BLOCK 6 Lot 12 OPEN	2731	474
BLOCK 6 Lot 13	7443	355
BLOCK 6 Lot 14	6270	334
BLOCK 6 Lot 15	8356	335
BLOCK 6 Lot 16	6820	344
BLOCK 6 Lot 17	8590	345
BLOCK 6 Lot 18	8455	337
BLOCK 6 Lot 19	5495	318
BLOCK 6 Lot 20 OPEN	2040	436
BLOCK 6 Lot 21	6518	344
BLOCK 6 Lot 22	7630	359
BLOCK 6 Lot 23	7775	361
BLOCK 6 Lot 24	7272	352
BLOCK 6 Lot 25	6820	344
BLOCK 6 Lot 26	5500	320
BLOCK 6 Lot 27	5500	320
BLOCK 6 Lot 28	5500	320
BLOCK 7 Lot 1 OPEN	1020	228
BLOCK 7 Lot 2	6516	342
BLOCK 7 Lot 3	5499	318
BLOCK 7 Lot 4	6344	338
BLOCK 7 Lot 5	8182	401
BLOCK 7 Lot 6	8724	409
BLOCK 7 Lot 7	5613	324
BLOCK 7 Lot 8	6808	342
BLOCK 7 Lot 9	6820	344
BLOCK 7 Lot 10	6820	344
BLOCK 7 Lot 11	6520	344
BLOCK 7 Lot 12	6520	344
BLOCK 7 Lot 13 OPEN	32541	726
BLOCK 7 Lot 14	7033	353
BLOCK 7 Lot 15	6825	345
BLOCK 7 Lot 16	6820	344
BLOCK 7 Lot 17	6820	344
BLOCK 7 Lot 18	6808	342
BLOCK 7 Lot 19	5875	330

Parcel Table		
Lot	Area	Perimeter
BLOCK 7 Lot 20	8534	408
BLOCK 7 Lot 21	7890	382
BLOCK 7 Lot 22	6290	333
BLOCK 7 Lot 23	6520	344
BLOCK 7 Lot 24	6529	344
BLOCK 7 Lot 25	7159	353
BLOCK 7 Lot 26	5619	325
BLOCK 7 Lot 27	5500	320
BLOCK 7 Lot 28	5500	320
BLOCK 7 Lot 29	5509	320
BLOCK 7 Lot 30	5500	320
BLOCK 7 Lot 31	5500	320
BLOCK 7 Lot 32	5500	320
BLOCK 7 Lot 33	5503	321
BLOCK 7 Lot 34	5508	321
BLOCK 7 Lot 35 OPEN	1145	201
BLOCK 7 Lot 36	5506	325
BLOCK 7 Lot 37	5562	374
BLOCK 7 Lot 38	5848	347
BLOCK 7 Lot 39 OPEN	5772	351
BLOCK 8 Lot 1 OPEN	868	223
BLOCK 8 Lot 2	4356	298
BLOCK 8 Lot 3	4400	300
BLOCK 8 Lot 4	4400	300
BLOCK 8 Lot 5	4744	306
BLOCK 8 Lot 6	4836	302
BLOCK 8 Lot 7 OPEN	2072	258
BLOCK 8 Lot 8	4836	308
BLOCK 8 Lot 9	4435	301
BLOCK 8 Lot 10	4400	300
BLOCK 8 Lot 11	4400	300
BLOCK 8 Lot 12	4400	300
BLOCK 8 Lot 13	4400	300
BLOCK 8 Lot 14	4376	296
BLOCK 8 Lot 15 OPEN	958	218
BLOCK 9 Lot 1 OPEN	868	223
BLOCK 9 Lot 2	4395	298
BLOCK 9 Lot 3	4400	300
BLOCK 9 Lot 4	4400	300
BLOCK 9 Lot 5	4754	306
BLOCK 9 Lot 6 OPEN	1836	253
BLOCK 9 Lot 7	5118	313
BLOCK 9 Lot 8	4400	300
BLOCK 9 Lot 9	4400	300
BLOCK 9 Lot 10	4400	300
BLOCK 9 Lot 11	4400	300
BLOCK 9 Lot 12	4457	305
BLOCK 9 Lot 13	4556	307
BLOCK 9 Lot 14 OPEN	1162	258
BLOCK 10 Lot 1 OPEN	1381	300
BLOCK 10 Lot 2	7038	345
BLOCK 10 Lot 3	5500	320
BLOCK 10 Lot 4	5500	320
BLOCK 10 Lot 5	5500	320
BLOCK 10 Lot 6	7572	362
BLOCK 10 Lot 7 OPEN	2478	523
BLOCK 10 Lot 8	7024	361
BLOCK 10 Lot 9 OPEN	8251	436
BLOCK 11 Lot 1 OPEN	1020	228
BLOCK 11 Lot 2	5496	318

Parcel Table		
Lot	Area	Perimeter
BLOCK 11 Lot 3	5500	320
BLOCK 11 Lot 4	5500	320
BLOCK 11 Lot 5	5500	320
BLOCK 11 Lot 6	5500	320
BLOCK 11 Lot 7	5500	320
BLOCK 11 Lot 8	5500	320
BLOCK 11 Lot 9 OPEN	2738	271
BLOCK 11 Lot 10	3720	324
BLOCK 11 Lot 11	3720	324
BLOCK 11 Lot 12	3720	324
BLOCK 11 Lot 13	3720	324
BLOCK 11 Lot 14	5720	324
BLOCK 11 Lot 15	5720	324
BLOCK 11 Lot 16	5720	324
BLOCK 11 Lot 17	5720	324
BLOCK 11 Lot 18	8651	347
BLOCK 11 Lot 19	8944	406
BLOCK 11 Lot 20	9564	423
BLOCK 11 Lot 21 OPEN	8173	714
BLOCK 11 Lot 22 OPEN	69765	2017
BLOCK 12 Lot 1 OPEN	868	223
BLOCK 12 Lot 2	4395	298
BLOCK 12 Lot 3	4400	300
BLOCK 12 Lot 4	4400	300
BLOCK 12 Lot 5	4400	300
BLOCK 12 Lot 6	4400	300
BLOCK 12 Lot 7	4400	300
BLOCK 12 Lot 8	4400	300
BLOCK 12 Lot 9	4391	298
BLOCK 12 Lot 10 OPEN	940	218
BLOCK 13 Lot 1 OPEN	958	223
BLOCK 13 Lot 2	4396	298
BLOCK 13 Lot 3	4400	300
BLOCK 13 Lot 4	4400	300
BLOCK 13 Lot 5	4400	300
BLOCK 13 Lot 6	4400	300
BLOCK 13 Lot 7	4400	300
BLOCK 13 Lot 8	4400	300
BLOCK 13 Lot 9	4391	298
BLOCK 13 Lot 10 OPEN	940	218
BLOCK 14 Lot 1 OPEN	940	218
BLOCK 14 Lot 2	4391	298
BLOCK 14 Lot 3	4400	300
BLOCK 14 Lot 4	4400	300
BLOCK 14 Lot 5	4400	300
BLOCK 14 Lot 6	4400	300
BLOCK 14 Lot 7	4400	300
BLOCK 14 Lot 8	4417	303
BLOCK 14 Lot 9	4948	345
BLOCK 14 Lot 10 OPEN	19622	556
BLOCK 15 Lot 1 OPEN	940	218
BLOCK 15 Lot 2	4391	298
BLOCK 15 Lot 3	4400	300
BLOCK 15 Lot 4	4400	300
BLOCK 15 Lot 5	4400	300
BLOCK 15 Lot 6	4400	300
BLOCK 15 Lot 7	4333	295
BLOCK 15 Lot 8 OPEN	6168	313

Curve Table				
Curve #	Radius	Length	Chord	Bearing	Delta
C1	55.00	42.96	41.87	N19°25'36"W	44°45'00"
C2	55.00	35.51	34.89	N24°26'32"E	36°59'19"
C3	55.00	35.51	34.89	N61°25'51"E	36°59'19"
C4	55.00	47.84	46.35	S15°09'15"E	49°50'27"
C5	50.00	78.69	70.82	S45°28'54"W	90°10'38"
C6	25.00	23.18	22.36	S84°00'19"W	53°07'48"
C7	25.00	18.16	15.83	S18°50'00"W	37°02'49"
C8	55.00	80.85	73.77	S81°03'39"E	84°13'32"
C9	55.00	5.37	5.37	N34°01'36"E	5°35'31"
C10	55.00	70.53	65.73	S00°23'33"W	73°28'03"
C11	50.00	78.39	70.60	N44°31'09"W	89°49'23"
C12	25.00	23.18	22.36	N62°51'53"W	53°07'48"
C13	25.00	16.01	15.74	N17°57'12"W	36°41'34"
C14	393.00	39.05	39.04	S86°46'28"E	5°41'52"
C15	393.00	57.36	57.31	S79°46'57"E	8°21'52"
C16	393.00	57.02	56.97	S71°28'13"E	8°18'16"
C17	393.00	60.39	60.33	S62°58'18"E	8°48'36"
C18	393.00	20.78	20.78	S57°00'03"E	3°00'54"
C19	1825.00	14.65	14.65	S55°20'48"E	0°27'36"
C20	1825.00	20.00	20.00	S54°48'10"E	0°37'40"
C21	1825.00	50.00	50.00	S53°42'14"E	1°34'11"
C22	1825.00	41.69	41.69	S52°15'52"E	1°18'32"
C23	55.00	47.38	45.92	S84°12'09"E	49°21'13"
C24	55.00	33.52	33.00	S24°04'54"E	34°54'56"
C25	55.00	33.40	32.89	S10°47'19"W	34°47'32"
C26	55.00	43.16	42.06	S30°40'02"W	44°57'34"
C27	55.00	4.33	4.33	S75°24'10"W	4°30'42"
C28	50.00	78.54	70.71	S04°36'36"E	90°00'00"
C29	25.00	23.18	22.36	N11°49'29"E	53°07'48"
C30	25.00	15.09	13.81	N33°10'31"W	34°34'32"
C31	1800.00	124.82	124.79	S52°33'39"E	3°58'00"
C32	370.00	218.76	216.54	S72°35'31"E	34°01'48"
C33	345.00	80.76	80.58	N84°54'02"W	13°24'45"
C34	345.00	84.09	83.88	N69°12'42"W	13°57'55"
C35	345.00	43.06	43.03	N56°54'10"W	6°39'06"
C36	1775.00	16.53	16.53	N55°16'26"W	0°32'01"
C37	1775.00	15.46	15.46	N54°43'47"W	0°29'56"
C38	1775.00	53.91	53.91	N53°30'45"W	1°44'27"
C39	1775.00	30.98	30.98	N52°06'27"W	1°00'00"
C40	1530.00	95.43	95.44	S53°24'58"E	3°34'43"
C41	1530.00	9.47	9.47	S55°23'58"E	0°21'17"
C42	100.00	59.39	58.52	S72°33'31"E	34°01'48"
C43	235.00	55.01	54.89	N83°54'02"W	13°24'45"
C44	235.00	54.49	54.37	N69°52'18"W	13°17'09"
C45	235.00	54.49	54.37	N56°28'28"W	13°17'09"
C46	235.00	27.28	27.27	N52°54'10"W	6°39'06"
C47	235.00	27.28	27.27	N46°54'10"W	6°39'06"
C48	125.00	30.74	30.67	S82°33'36"E	14°05'32"
C49	125.00	43.50	43.28	S65°32'45"E	19°56'16"
C50	1550.00	16.53	16.53	S55°16'20"E	0°36'32"
C51	1550.00	15.90	15.90	S54°41'29"E	0°35'10"
C52	1550.00	48.98	48.98	S53°30'45"E	1°48'37"
C53	1550.00	27.14	27.14	S52°06'37"E	1°00'00"
C54	1505.00	36.54	36.54	S52°41'11"E	2°09'09"
C55	75.00	20.49	20.42	N26°57'08"E	15°39'05"
C56	100.00	27.32	27.23	N26°57'08"E	15°39'05"
C57	125.00	34.15	34.04	S26°57'08"W	15°39'05"
C58	150.00	36.88	36.76	S26°57'08"W	15°39'05"
C59	75.00	44.55	43.89	S72°35'31"E	34°01'48"
C60	75.00	5.31	5.31	N07°25'18"E	4°03'29"

Curve Table				
Curve #	Radius	Length	Chord	Bearing	Delta
C61	55.00	44.80	43.57	N06°40'28"W	46°40'09"
C62	55.00	47.67	46.19	N41°29'27"E	49°39'41"
C63	55.00	41.09	40.14	N87°43'28"E	42°48'13"
C64	55.00	29.78	29.84	S55°40'21"E	31°34'01"
C65	75.00	5.31	5.31	S72°54'01"E	4°03'25"
C66	90.00	94.89	81.28	S54°45'35"W	108°44'00"
C67	25.00	24.26	23.32	N28°11'41"E	55°36'12"
C68	55.00	23.18	22.36	N82°43'41"E	53°07'48"
C69	1845.00	0.57	0.57	S70°52'25"E	0°01'03"
C70	1845.00	63.97	63.97	S71°54'56"E	2°02'38"
C71	1845.00	63.83	63.83	S73°57'49"E	2°02'51"
C72	1845.00	63.83	63.83	S76°00'40"E	2°02'51"
C73	1845.00	8.76	8.76	S77°10'15"E	0°16'19"
C74	75.00	18.10	18.07	S83°27'25"E	13°49'00"
C75	100.00	21.47	21.43	N83°27'25"W	12°18'00"
C76	1870.00	59.85	59.84	N76°23'36"W	1°49'39"
C77	1870.00	150.33	150.28	N73°17'35"W	4°36'21"
C78	1905.00	123.50	123.47	N72°47'13"W	3°42'32"
C79	1845.00	114.59	114.57	S72°36'21"E	3°33'53"
C80	1905.00	123.50	123.47	N72°47'13"W	3°42'32"
C81	125.00	18.28	18.26	S10°16'55"W	8°22'36"
C82	125.00	12.55	12.54	S03°19'06"W	5°45'01"
C83	100.00	24.86	24.79	S07°27'25"W	14°15'00"
C84	75.00	19.49	19.45	N07°27'25"E	14°53'39"
C85	125.09	26.83	26.78	S83°27'25"E	12°18'00"
C86	135.09	28.98	28.93	N83°27'25"W	12°18'00"
C87	1735.00	8.23	8.23	N77°10'15"W	0°16'19"
C88	1735.00	62.00	62.00	N76°00'40"W	2°02'51"
C89	1735.00	62.00	62.00	N73°57'49"W	2°02'51"
C90	1735.00	62.00	62.00	N71°54'58"W	2°02'51"
C91	1735.00	0.57	0.57	N70°52'50"W	0°01'07"
C92	25.00	23.18	22.36	N26°10'19"W	53°07'48"
C93	25.00	10.72	10.64	N65°01'19"W	24°34'12"
C94	1625.00	7.71	7.71	N77°10'15"W	0°16'19"
C95	1625.00	58.07	58.07	N76°00'40"W	2°02'51"
C96	1625.00	58.07	58.07	N73°57'49"W	2°02'51"
C97	1625.00	58.04	58.03	N71°55'06"W	2°02'47"
C98	1624.99	0.57	0.57	N70°52'01"W	0°01'12"
C99	50.00	67.81	62.73	S38°27'25"E	77°42'00"
C100	1690.00	178.85	178.76	S74°25'25"E	6°03'00"
C101	55.00	59.65	56.77	N13°08'35"E	62°08'08"
C102	55.00	37.38	36.67	N73°22'25"W	38°56'33"
C103	55.00	47.24	45.80	N87°38'02"W	49°12'42"
C104	55.00	14.45	14.41	S65°23'56"W	15°03'26"
C105	1575.00	21.85	21.85	N76°54'35"W	0°47'43"
C106	1575.00	66.56	66.56	N75°18'03"W	2°25'17"
C107	1575.00	66.87	66.87	N72°52'26"W	2°25'26"
C108	1575.00	21.55	21.55	N71°15'06"W	0°47'02"
C109	50.00	78.54	70.71	N44°36'36"E	90°00'00"
C110	55.00	23.18	22.36	N59°18'31"W	24°09'12"
C111	25.00	23.18	22.36	S45°41'29"W	53°07'48"
C112	55.00	47.55	46.08	S56°22'20"E	49°32'06"
C113	55.00	30.87	30.47	N82°45'31"E	32°09'32"
C114	55.00	33.52	33.00	N49°14'38"E	34°54'55"
C115	55.00	49.85	48.16	N03°49'18"E	51°55'43"
C116	495.00	78.81	78.72	S33°46'58"W	9°12'31"
C117	495.00	62.43	62.39	S25°23'44"W	7°13'26"
C118	495.00	24.38	24.38	S20°32'16"W	2°49'21"
C119	55.00	51.25	49.41	S31°42'05"W	53°23'14"

Curve Table				
Curve #	Radius	Length	Chord	Bearing	Delta
C120	55.00	33.62	33.00	S12°26'59"E	34°34'55"
C121	55.00	31.39	30.97	S46°13'33"E	32°42'06"
C122	55.00	45.63	44.33	S86°27'32"E	47°32'00"
C123	125.00	20.21	20.19	S75°30'20"E	9°15'51"
C124	125.00	20.21	20.19	S84°46'12"E	9°15'51"
C125	125.00	16.06	16.05	N86°53'04"E	7°21'27"
C126	125.00	38.53	38.38	N74°24'24"E	17°39'43"
C127	125.00	59.31	58.76	N51°58'58"E	27°11'09"
C128	225.00	148.41	145.73	S70°30'22"E	37°47'31"
C129	200.00	131.92	129.54	S70°30'22"E	37°47'31"
C130	175.00	73.85	73.31	S77°18'42"E	24°10'50"
C131	175.00	40.39	40.30	S58°36'34"E	13°13'28"
C132	175.00	1.18	1.18	S51°48'14"E	0°23'14"
C133	100.00	91.12	88.00	N64°28'38"E	52°12'23"
C134	75.00	68.34	66.00	N64°28'38"E	52°12'23"
C135	65.00	59.23	57.20	N64°28'38"E	52°12'23"
C136	65.00	21.00	20.90	S03°51'44"W	18°31'42"
C137	75.00	24.23	24.15	S03°51'44"W	18°31'42"
C138	100.00	32.34	32.20	N09°51'44"E	18°31'42"
C139	125.00	35.30	35.24	N11°01'20"E	16°12'30"
C140	125.00	5.06	5.06	N01°45'29"E	2°19'12"
C141	65.00	21.02	20.93	S06°08'16"E	18°31'42"
C142	75.00	24.25	24.15	S06°08'16"E	18°31'42"
C143	100.50	32.34	32.20	S06°08'16"E	18°31'42"
C144	50.00	78.54	70.71	S25°53'25"E	90°00'00"
C145	25.00	23.18	22.36	S44°18'31"E	53°07'48"
C146	25.00	16.09	15.81	S02°41'29"W	36°52'12"
C147	470.00	158.02	157.28	S28°45'29"W	19°15'48"
C148	445.00	2.36	2.36	S19°17'25"W	0°18'40"
C149	445.00	50.17	50.14	S22°41'02"W	6°27'33"
C150	445.00	21.49	21.49	S27°17'49"W	2°46'00"
C151	445.00	50.17	50.14	S31°54'36"W	6°27'33"
C152	445.00	25.24	25.24	S36°45'53"W	3°15'01"
C153	335.00	1.92	1.92	N19°17'25"E	0°19'40"
C154	335.00	37.77	37.75	N22°41'02"E	6°27'33"
C155	335.00	18.18	18.18	N27°17'49"E	2°46'00"
C156	335.00	37.77	37.75	N31°54'36"E	6°27'33"
C157	335.00	19.00	19.00	N36°45'53"E	3°15'01"
C158	335.00	30.64	30.63	S35°46'10"W	5°14'27"
C159	335.00	19.87	19.87	S31°26'29"W	3°24'13"
C160	335.00	56.71	56.64	S24°30'05"W	9°41'55"
C161	335.00	3.31	3.31	S19°34'30"W	0°34'30"
C162	200.00	67.24	66.93	N28°43'29"E	19°15'48"
C163	225.00	5.31	5.31	N19°48'10"E	1°21'09"
C164	225.00	36.34	36.30	N25°06'23"E	9°15'16"
C165	225.00	13.41	13.41	N31°28'28"E	3°24'37"
C166	225.00	20.58	20.57	N35°46'07"E	5°14'27"
C167	175.00	35.75	35.68	S25°06'23"W	11°42'06"
C168	165.00	43.68	43.56	S28°42'40"W	15°10'06"
C169	70.00	44.19	43.48	S17°42'30"E	36°09'58"
C170	70.00	19.33	19.26	S34°47'03"E	15°49'07"
C171	50.00	45.37	43.83	N25°37'03"W	51°59'06"
C172	75.00	68.05	65.74	N25°37'03"W	51°59'06"
C173	100.00	90.73	87.65	N25°37'03"W	51°59'06"
C174	125.00	31.60	31.52	S44°32'02"E	14°29'08"
C175	125.00	43.32	43.10	S27°14'47"E	19°51'23"
C176	125.00	38.49	38.34	S08°26'48"E	17°38'35"

REVISED

NO.	DATE	DESCRIPTION

Bailey Engineering, Inc.
CIVIL ENGINEERING | PLANNING | CADD
4242 N. BROOKSIDE LANE
BOISE, ID 83714
TEL 208-854-0013
www.baileyengineers.com

DRAWN BY: JO/RR CHECKED BY: DAVID A. BAILEY P.E. | PROJECT: C2018-008 | DATE: 10-01-2018

PARCEL TABLES & CURVE TABLES

LEDGESTONE SUBDIVISION
TRILOGY DEVELOPMENT, INC.

ORIGINAL
PP-3

TEMPORARY ACCESS TO HUBBARD RD. TO BE RELINQUISHED UPON LATER PHASE OF DEVELOPMENT

FEMA FLOOD ZONE A

S89°25'47"E 550.00'

E. HUBBARD ROAD

S89°25'47"E 227.00'

L1 L2 L3 L4 L5

S. STRIDER ROAD

N0°23'35"E 1151.71'

N0°23'35"E 317.70'

N0°23'35"E 814.01'

N0°23'35"E 1496.20'

8' WALKWAY

E. FITZ ROY ST.

N. NEW MORNING AVE.

E. BOULDER BASIN DR.

E. VALLEY MIND DR.

N. WHISPER WIND DR.

N. MOONSHADOW AVE.

N. NIGHT DR. AVE.

N. LUNAR RIDGE AVE.

N. ROCKY BOTTOM AVE.

N. LAKE MEDINA AVE.

E. NEW SPRING ST.

E. MOSSY CREEK DR.

E. RIO VILLEGAS ST.

BLOCK 1

BLOCK 2

BLOCK 3

BLOCK 4

BLOCK 5

BLOCK 6

BLOCK 7

BLOCK 8

BLOCK 9

BLOCK 10

BLOCK 11

BLOCK 12

BLOCK 13

BLOCK 14

BLOCK 15

S55°34'36"E 631.36'

S51°36'36"E 1580.10'

BOISE PROJECT BOARD OF CONTROL EASEMENT 25' SOUTH AND 37' NORTH FROM MASON CREEK CENTERLINE

N77°18'25"W 398.64''

N70°52'25"W 990.00''

S74°39'25"E 2324.80'

N85°22'35"E 1329.94'

S0°47'25"E 121.00'

356.27'

N0°22'30"E 1213.08'

84.43' WEST GROVE ROAD

PLAT LEGEND

LOT NUMBER	①
LOT AREA	6,500
BLOCK NUMBER	BLOCK 7
FLOW ARROW	
FIRE HYDRANT	
CATCH BASIN	
STREET NAME	W. ASHTON DR.
BOUNDARY	
LOT LINES	
ROAD CENTERLINE	
RIGHT OF WAY	
EASEMENT	
SETBACK	
CURB GUTTER S/W	
SEWER LINE	
WATER LINE	
STORM DRAIN LINE	
PRESSURE IRRIGATION	
GRAVITY IRRIGATION	
PHASE LINE	
FEMA FLOOD HAZARD ZONE A	

60 0 30 60 120

SCALE IN FEET
1" = 60'

PROFESSIONAL ENGINEER REGISTERED CONSTRUCTION STATE OF IDAHO DAVID A. BAILEY 18522

REVISED		
NO.	DATE	DESCRIPTION

Bailey Engineering, Inc.

CIVIL ENGINEERING | PLANNING | CADD

4241 N. BROOKSIDE LANE
BOISE, ID 83714
TEL 208-853-0613
www.baileyengineers.com

DRAWN BY: AS/RE CHECKED BY: DAVID A. BAILEY P.E. PROJECT: C2018-008 DATE: 10-01-2018

CONCEPTUAL ENGINEERING PLAN
LEDGESTONE SUBDIVISION
TRILOGY DEVELOPMENT, INC.

SHEET PP-4

PLAT LEGEND

LOT NUMBER	1
LOT AREA	8,500 sf
BLOCK NUMBER	BLOCK 7
FLOW ARROW	
FIRE HYDRANT	
CATCH BASIN	
STREET NAME	W. ASHTON DR.
BOUNDARY	
LOT LINES	
ROAD CENTERLINE	
RIGHT OF WAY	
EASEMENT	
SETBACK	
CURB GUTTER SW	
SEWER LINE	
WATER LINE	
STORM DRAIN LINE	
PRESSURE IRRIGATION	
GRAVITY IRRIGATION	
PHASE LINE	
FEMA FLOOD HAZARD ZONE A	

SSMH B1 SSMH B2 SSMH C2 SSMH C3 SSMH C4 SSMH C5 SSMH C6 SSMH B3 SSMH C1 SSMH H1 SSMH I1 SSMH H2 SSMH I2 SSMH D1 SSMH E1 SSMH E2 SSMH E3 SSMH D2 SSMH D3 SSMH D4 SSMH D5 SSMH D6 SSMH F1 SSMH K3 SSMH K4 SSMH G1 SSMH K1 SSMH K2 SSMH M1 SSMH M2 SSMH M3 SSMH M4 SSMH K5 SSMH C7 SSMH C8 SSMH C9 SSMH J1 SSMH J2 SSMH J3 SSMH C10 SSMH C11 SSMH C12 SSMH O1 SSMH C14 SSMH C13 SSMH C15 SSMH N1 SSMH N2 SSMH C16 SSMH C17 SSMH C18 SSMH C19 SSMH C20

BLOCK 1 BLOCK 2 BLOCK 3 BLOCK 4 BLOCK 5 BLOCK 6 BLOCK 7 BLOCK 8 BLOCK 9 BLOCK 10 BLOCK 11 BLOCK 12 BLOCK 13 BLOCK 14 BLOCK 15

60 0 30 60 120
SCALE IN FEET
1" = 60'

PROFESSIONAL ENGINEER REGISTERED STATE OF IDAHO DAVID A BAILEY 18272

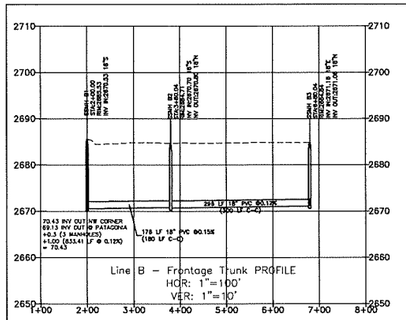
REVISED		
NO.	DATE	DESCRIPTION

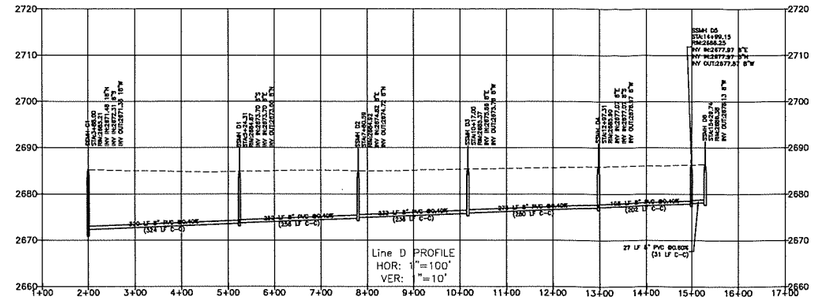
Bailey Engineering, Inc.
CIVIL ENGINEERING | PLANNING | CADD
4242 N. BROOKSIDE LANE, BOISE, ID 83714
TEL 208-853-0613
www.baileyengineers.com

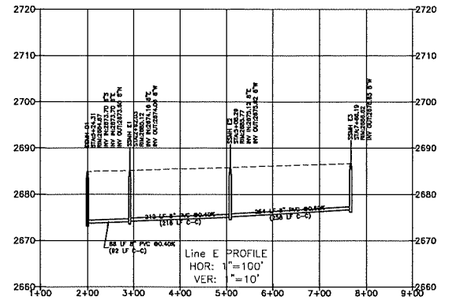
DRAWN BY: JBD | CHECKED BY: DAVID A. BAILEY P.E. | PROJECT: C2018-008 | DATE: 10-01-2018

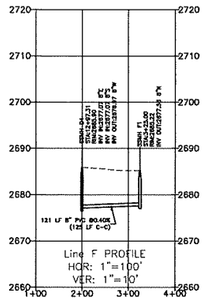
CONCEPTUAL SEWER PLAN
LEDGESTONE SUBDIVISION
TRILOGY DEVELOPMENT, INC.

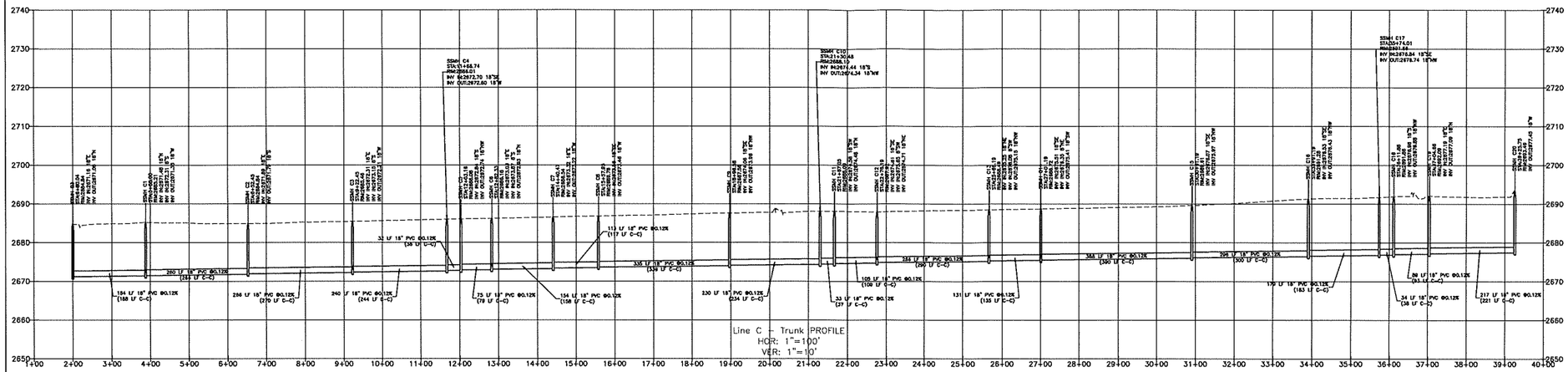
SHEET PP-5

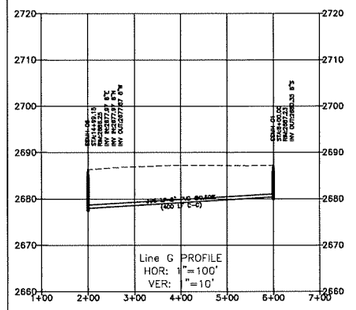


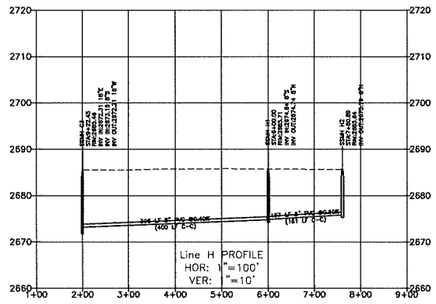


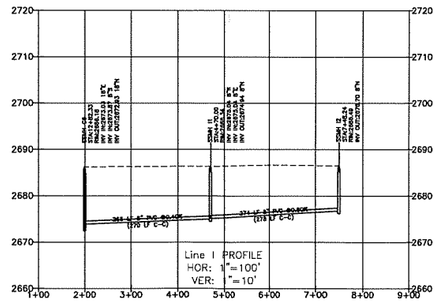


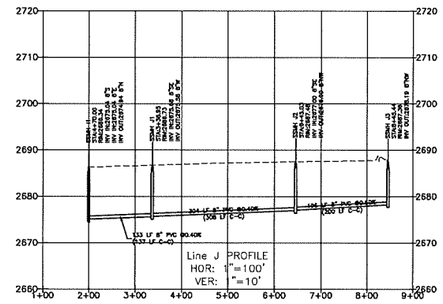


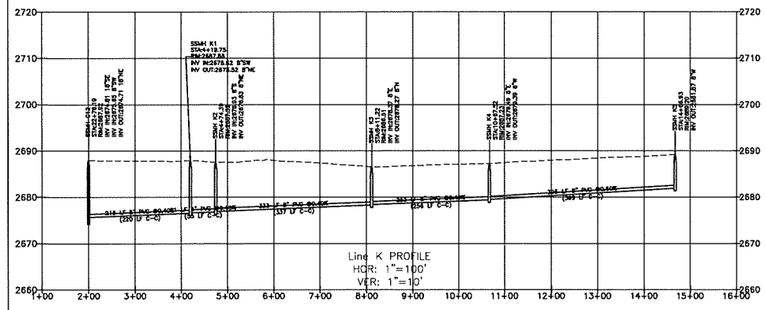


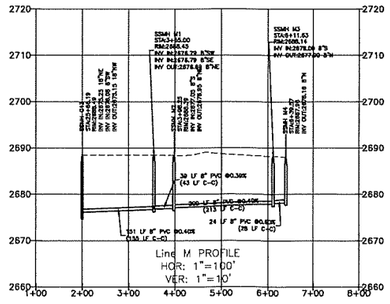


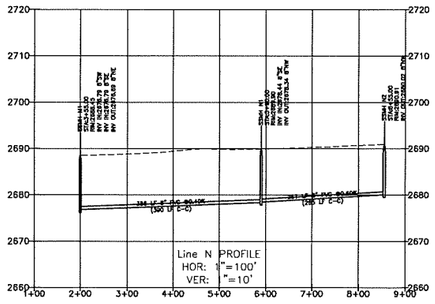


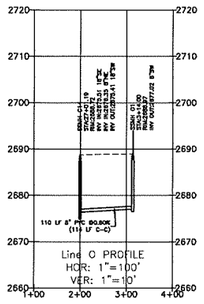












PROFESSIONAL ENGINEER
REGISTERED
18559
CONSTRUCTION
STATE OF IDAHO
DAVID A BAILEY

REVISED		
NO.	DATE	DESCRIPTION

Bailey Engineering, Inc.
CIVIL ENGINEERING | PLANNING | CADD
4040 N. BROOKSIDE LANE
BOISE, ID 83714
TEL: 208-336-0013
www.baileyengineers.com

DRAWN BY: JMD | CHECKED BY: DAVID A. BAILEY P.E. | PROJECT: C2018-008 | DATE: 10-01-2018

CONCEPTUAL SEWER PROFILES

LEDGESTONE SUBDIVISION

TRILOGY DEVELOPMENT, INC.

SHEET PP-6

City of Kuna
P.O. Box 13
Kuna, Idaho 83634

Phone: (208) 922-5274
Fax: (208) 922-5989
Web: www.kunacity.id.gov

City of Kuna

AFFIDAVIT OF LEGAL INTEREST

State of Idaho)
) ss
County of Ada)

I, TJ Johnson / G Elaine Johnson , 2425 N. Locust Grove Road
Name **Address**

Kuna, ID 83634 ,
City **State** **Zip Code**

being first duly sworn upon oath, depose and say:

(If Applicant is also Owner of Record, skip to B)

A. That I am the record owner of the property described on the attached, and I grant my

Permission to Jane Suggs / WHPacific 2141 Airport Way, Suite 104, Boise, ID 83705 Name Address
to submit the accompanying application pertaining to that property.

B. I agree to indemnify, defend and hold City of Kuna and its employees harmless from any claim or liability resulting from any dispute as to the statements contained herein or as to the ownership of the property which is the subject of the application.

C. I hereby grant permission to the City of Kuna staff to enter the subject property for the purpose of site inspections related to processing said application(s).

Dated this 1st day of October, 2018

TJ Johnson G. Elaine Johnson
Signature

Subscribed and sworn to before me the day and year first above written.

Fred Depold
Notary Public for Idaho

Residing at: meridian Idaho

My commission expires: 12-18-2023

FRED DEPOLD
NOTARY PUBLIC
MY COMMISSION EXPIRES 12-18-2023
STATE OF IDAHO
COMMISSION NUMBER 43783

FRED DEPOLD
NOTARY PUBLIC
STATE OF IDAHO

Exhibit
A29

EXHIBIT A

TRACT I:

An irregular tract in the Northeast one-quarter of Section 18, T. 2 N., R. 1 E., Boise Meridian, Ada County, Idaho, and lying Southerly of the Crest Ditch and Northerly of a drain ditch described as follows:

From a point on the East boundary of Section 18, T. 2 N., R. 1 E., Boise Meridian, situated 1208.46 feet North 0°02' West of the quarter section corner between Sections 17 and 18; thence
South 85°01' West along the center line of the Crest Ditch 351.6 feet to the real place of beginning; thence
South 85°01' West along the center line of the drain ditch, 980.3 feet to a point; thence
North 71°14' West along the center line of a drain ditch, 990.00 feet to a point; thence
North 77°40' West along the center line of a drain ditch, 398.64 feet to a point on the North and South center line of Section 18; thence
North 0°02' East along the North and South center line of Section 18, 337.7 feet to a point in the center of the Crest ditch; thence
South 75°01' East along the center line of the Crest Ditch 2324.8 feet to a point; thence
South 41°09' East along the center line of the Crest Ditch 78.95 feet to the real place of beginning.

TRACT II:

Part of the Northeast one-quarter of Section 18, T. 2 N., R. 1 E., Boise Meridian, Ada County, Idaho.

Beginning at the East quarter corner of said Section; thence West 2654.5 feet to center of said Section; thence North 0°2' East 1496.2 feet; thence South 77°40' East, 398.64 feet; thence South 71°14' East, 990 feet; thence North 85°1' East 1331.9 feet; thence South 0°2' East 1208.46 feet to a point of beginning.

EXCEPT roads and ditches and rights of way.

TRACT III:

An irregular tract in the Northeast one-quarter of Section 18, T. 2 N., R. 1 E., Boise Meridian, Ada County, Idaho described as follows:

Beginning at the Quarter Section corner between Sections 7 and 18, T. 2 N., R. 1 E., Boise Meridian; thence North 89°59' East along the Section line 846.6 feet to a point in the center of the Mason Creek Ditch; thence South 56°06' East along the center line of the Mason Creek Ditch 673.11 feet to a point; thence South 52°08' East continuing along the center line of the Mason Creek Ditch 1580.1 feet to a point on the East boundary of Section 18; thence South 0°02' East 93.86 feet to a point in the Center of the Crest Ditch; thence South 85°01' West along the center line of the Crest Ditch 351.6 feet to a point; thence North 41°09' West continuing along the center line of the Crest Ditch 78.95 feet to a point; thence North 75°01' West continuing along the center line of the Crest Ditch 2324.8 feet to a point on the North and South center line of Section 18; thence North 0°02' East 814 feet to the place of beginning.

together with all and singular the tenements, hereditaments and appurtenances thereunto belonging or in anywise appertaining;

subject to all easements and rights of way of record or appearing on the land;

subject, also, to taxes and assessments levied and assessed for the year 1977, which are now liens but not yet due nor payable.

STATE OF ~~NEW YORK~~ Michigan)
: ss.
County of Leelanau)

On the 21 day of May, 1977, before me, personally came ROBERT MONTGOMERY, one of the Trustees of the A. E. MONTGOMERY and HELEN B. MONTGOMERY TRUST, to me, known to be the person described in and who executed the foregoing instrument, and acknowledged that he executed the same.

Mary Grace Carey
NOTARY PUBLIC FOR ~~NEW YORK~~ Michigan
Residence: Leland, Michigan 49654
Expiration Date - October 18, 1977

This document is being recorded as is at the request of T. J. Johnson. No seal on the Notary

ANNEXATION DESCRIPTION FOR
LEDGSTONE SUBDIVISION

A parcel of land located in the NE 1/4 of Section 18, Township 2 North, Range 1 East, Boise Meridian, Ada County, Idaho being more particularly described as follows:

BEGINNING at the N1/4 corner of said Section 18 from which the NE corner of said Section 18 bears South 89°25'47" East, 2651.44 feet;

thence along the North boundary line of said Section 18 South 89°25'47" East, 846.24 feet to a point on the centerline of the Mason Creek Feeder;

thence along the centerline of the Mason Creek Feeder the following 2 courses and distances:

thence leaving said North boundary line South 55°34'36" East, 676.24 feet;

thence South 51°36'36" East, 1,580.10 feet to a point on the East boundary line of said Section 18;

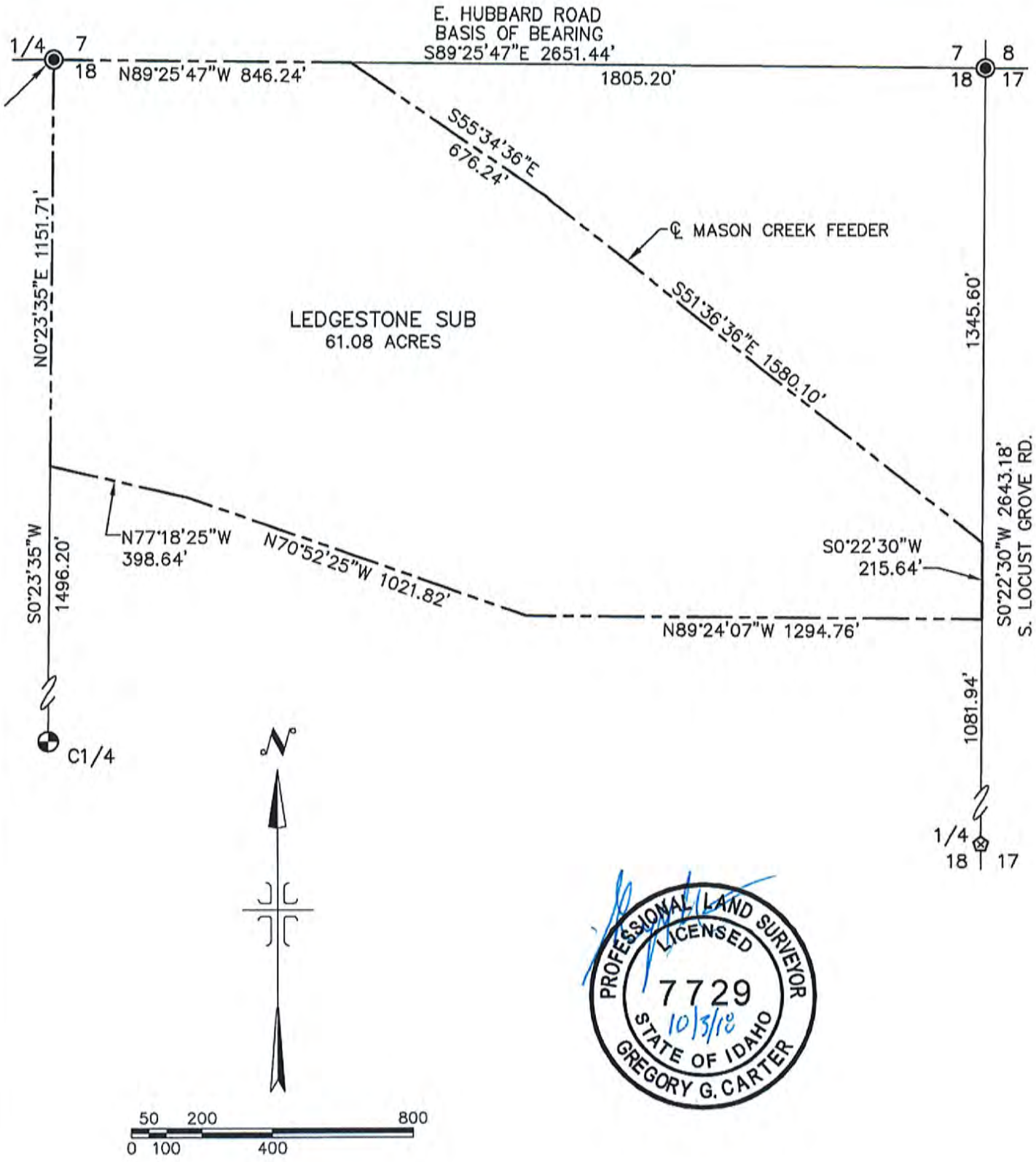
thence along said East boundary line South 00°22'30" West, 215.64 feet;

thence leaving said East boundary line North 89°24'07" West, 1,294.76 feet;

thence North 70°52'25" West, 1,021.82 feet;

thence North 77°18'25" West, 398.64 feet to a point on the North-South centerline of said Section 18;

thence along said North-South centerline North 00°23'35" East, 1,151.71 feet to the **REAL POINT OF BEGINNING**. Containing 61.08 acres, more or less.



SCALE: 1" = 400'

PROFESSIONAL LAND SURVEYOR
LICENSED
7729
10/3/18
STATE OF IDAHO
GREGORY G. CARTER

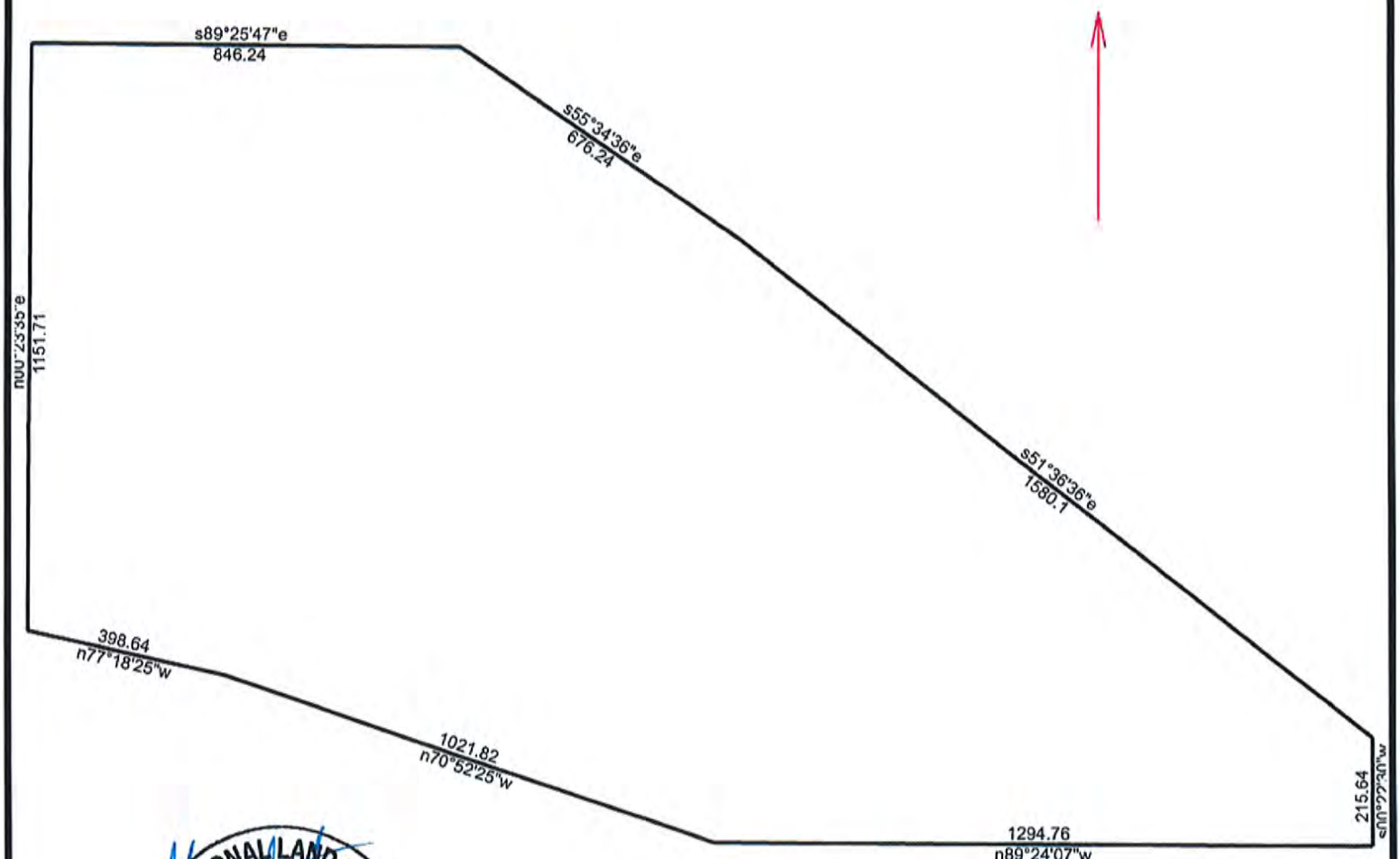
P:\Johnson SBoc Body Tops 18-148\dwg\Annexation exhibit.dwg 10/3/2018 9:30:37 AM

IDAHO SURVEY GROUP, LLC
9955 W. EMERALD ST.
BOISE, IDAHO 83704
(208) 846-8570

ANNEXATION EXHIBIT DRAWING FOR
LEDGESTONE SUBDIVISION

LOCATED IN THE NE 1/4 OF SECTION 18, T.2N., R.1E., B.M.,
ADA COUNTY, IDAHO

JOB NO. 18-148
SHEET NO. 1
DWG. DATE 10/3/2018



PROFESSIONAL LAND SURVEYOR
LICENSED
7729
10/3/18
STATE OF IDAHO
GREGORY G. CARTER

Ledgestone Subdivision Annexation Closure Sheet

10/3/2018

Scale: 1 inch= 340 feet | File:

Tract 1: 61.0829 Acres, Closure: n56.4606e 0.01 ft. (1/681860), Perimeter=7185 ft.

01 s89.2547e 846.24
02 s55.3436e 676.24
03 s51.3636e 1580.1
04 s00.2230w 215.64
05 n89.2407w 1294.76
06 n70.5225w 1021.82
07 n77.1825w 398.64
08 n00.2335e 1151.71

Jane Suggs

From: Sub Name Mail <subnamemail@adaweb.net>
Sent: Friday, September 07, 2018 3:02 PM
To: Jane Suggs
Cc: Gregory Carter; Cara Duskey
Subject: Ledgestone Subdivision Name Reservation

September 7, 2018

Jane Suggs, WHPacific
Greg Carter, Idaho Survey Group

RE: Subdivision Name Reservation: **LEDGESTONE SUBDIVISION**

At your request, I will reserve the name **Ledgestone Subdivision** for your project. I can honor this reservation only as long as your project is in the approval process. Final approval can only take place when the final plat is recorded.

This reservation is available for the project as long as it is in the approval process unless the project is terminated by the client, the jurisdiction or the conditions of approval have not been met, in which case the name can be re-used by someone else.

Sincerely,

Jerry L. Hastings, PLS 5359
County Surveyor
Deputy Clerk Recorder
Ada County Development Services
200 W. Front St., Boise, ID 83702
(208) 287-7912 *office*
(208) 287-7909 *fax*

From: Jane Suggs [mailto:JSuggs@whpacific.com]
Sent: Tuesday, September 04, 2018 8:39 AM
To: Sub Name Mail
Cc: Cara Duskey
Subject: Ledgestone Subdivision Name Reservation

Hi Glen,

Using the info listed previously (below and in **bold**), we'd like to request the subdivision name:

Ledgestone Subdivision

Still has "stone", but it is not the leading word.

Thank you,
Jane

Jane Suggs | WHPacific, Inc.

Exhibit
A2J

DESCRIPTION FOR
LEDGESTONE SUBDIVISION

A parcel of land located in the NE 1/4 of Section 18, Township 2 North, Range 1 East, Boise Meridian, Ada County, Idaho being more particularly described as follows:

BEGINNING at the N1/4 corner of said Section 18 from which the NE corner of said Section 18 bears South 89°25'47" East, 2651.44 feet;

thence along the North boundary line of said Section 18 South 89°25'47" East, 550.00 feet;

thence leaving said North boundary line South 00°34'13" West, 25.00 feet to a point on the South right-of-way line of E. Hubbard Road;

thence along the South right-of-way line of E. Hubbard Road the following 5 courses and distances:

thence South 89°25'47" East, 227.00 feet;

thence South 42°31'14" East, 42.45 feet;

thence South 89°25'47" East, 62.00 feet;

thence North 00°34'13" East, 31.00 feet;

thence South 89°25'47" East, 15.51 feet to a point on the centerline of the Mason Creek Feeder;

thence along the centerline of the Mason Creek Feeder the following 2 courses and distances:

thence South 55°34'36" East, 631.36 feet;

thence South 51°36'36" East, 1,580.10 feet to a point on the East boundary line of said Section 18;

thence along said East boundary line South 00°22'30" West, 215.64 feet;

thence leaving said East boundary line North 89°24'07" West, 1,294.76 feet;

thence North 70°52'25" West, 1,021.82 feet;

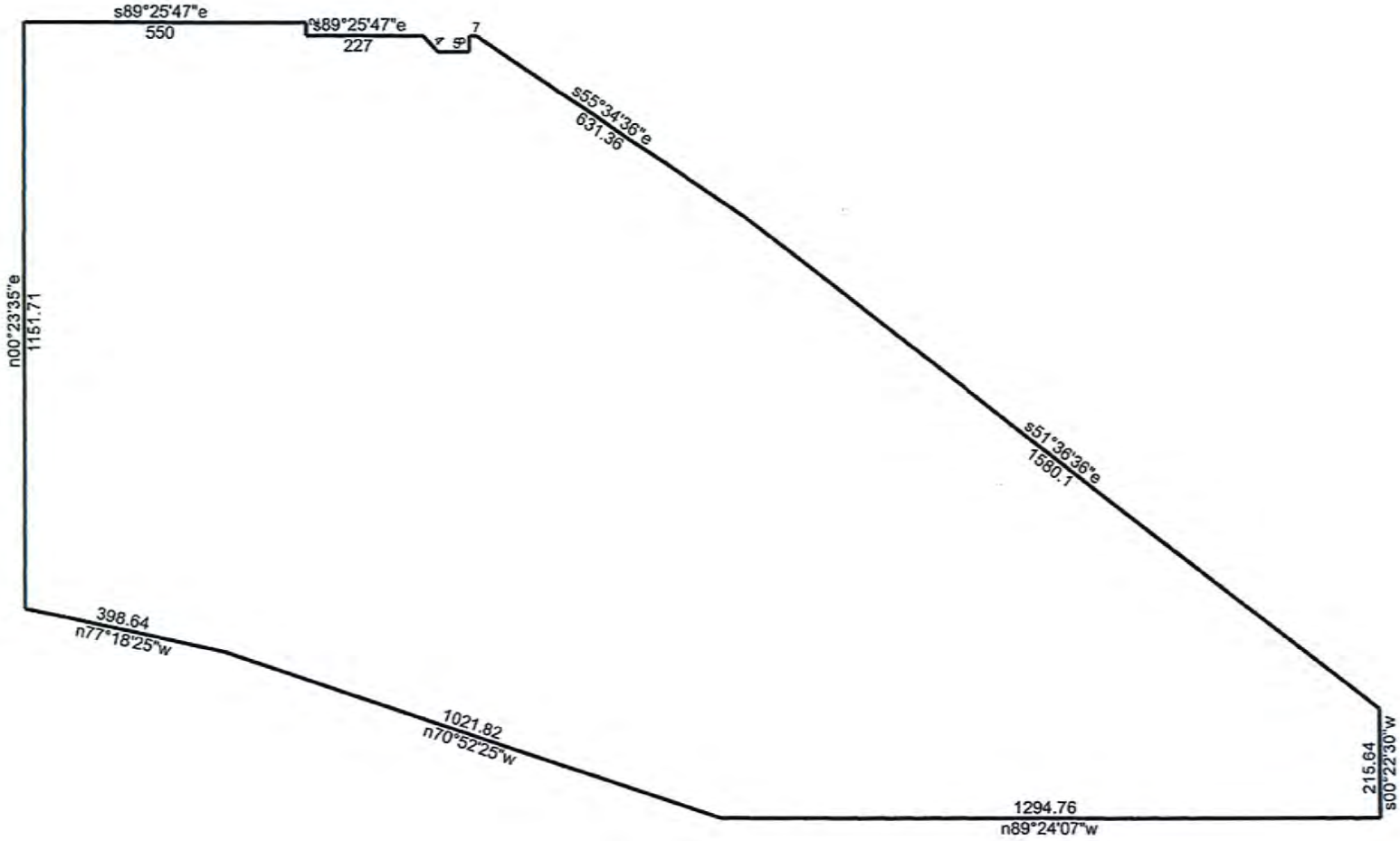
thence North 77°18'25" West, 398.64 feet to a point on the North-South centerline of said Section 18;

thence along said North-South centerline North 00°23'35" East, 1,151.71 feet to the **REAL POINT OF BEGINNING**. Containing 60.85 acres, more or less.

PROFESSIONAL LAND SURVEYOR LICENSED 7729 10/3/18 STATE OF IDAHO GREGORY G. CARTER

Exhibit A2E

Exhibit A2F



LEDGESTONE SUBDIVISION CLOSURE SHEET

10/3/2018

Scale: 1 inch= 340 feet

File:

Tract 1: 60.8477 Acres, Closure: n65.1540e 0.01 ft. (1/642788), Perimeter=7247 ft.

01 s89.2547e 550
02 s00.3413w 25
03 s89.2547e 227
04 s42.3114e 42.45
05 s89.2547e 62
06 n00.3413e 31
07 s89.2547e 15.51
08 s55.3436e 631.36
09 s51.3636e 1580.1
10 s00.2230w 215.64
11 n89.2407w 1294.76
12 n70.5225w 1021.82
13 n77.1825w 398.64
14 n00.2335e 1151.71

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