HARRISVILLE CITY

363 West Independence • Harrisville, Utah 84404 • (801) 782-4100

MAYOR:

Michelle Tait

COUNCIL MEMBERS:

Grover Wilhelmsen
Steve Weiss
Blair Christensen
Max Jackson
Kenny Loveland

CITY COUNCIL
AGENDA
363 West Independence Blvd
June 22, 2021
Join Zoom Meeting
https://us02web.zoom.us/j/83364118018?pwd=MFB6UmlMM1QzM1RBMUQrU1M3OVczZz09
Meeting ID: 833 6411 8018
Passcode: 352692

"In accordance with the Americans with Disabilities Act, the City of Harrisville will make reasonable accommodations for participation in the meeting. Request for assistance can be made by contacting the City Recorder at 801-782-4100, providing at least three working days advance notice of the meeting."

7:00 P.M. CITY COUNCIL MEETING
Presiding: Mayor Michelle Tait
Mayor Pro Tem: Steve Weiss

1. **CALL TO ORDER**

2. **PLEDGE OF ALLEGIANCE & OPENING CEREMONY** [Council Member Weiss]

3. **CONSENT ITEMS**
   - **a.** Approve the minutes of June 8, 2021 as presented.

4. **BUSINESS ITEMS**
   - **a.** Discussion/possible action to adopt Master Development Agreement for Ben Lomond Views.
   - **b.** Discussion/possible action to adopt Harrisville Ordinance 515; Zoning Map Amendment Ben Lomond View.

5. **PUBLIC COMMENTS -** ***(3 minute maximum)***

6. **MAYOR/COUNCIL FOLLOW-UP**

7. **ADJOURN**

DATE POSTED: June 18, 2021 **BY: Jennie Knight, City Recorder**

I, Jennie Knight, certify that I am the City Recorder of Harrisville City, Utah, and that the foregoing City Council agenda was posted and can be viewed at City Hall, on the City's website www.cityofharrisville.com, and at the Utah Public Notice Website at http://pmn.utah.gov. Notice of this meeting has also been duly provided as required by law.

MINUTES OF HARRISVILLE CITY
CITY COUNCIL MEETING
June 8, 2021
363 West Independence Blvd
Harrisville, UT 84404

Present: Mayor Michelle Tait, Council Member Grover Wilhelmsen, Council Member Steve Weiss, Council Member Blair Christensen, Council Member Max Jackson, Council Member Kenny Loveland.

Staff: Bill Morris, City Administrator, Glen Gammell, Public Works, Dennis Moore, Police Lieutenant, Alicia Davis, Police Sergeant, Nicholas Taylor, Police Detective, Bryan Fife, Recreation Director, Lynn Fortie, Treasurer, Matt Robertson, City Engineer, Jennie Knight, City Recorder, Cynthia Benson, Deputy City Recorder, Zach Loveland, Storm Sewer.

Visitors: Arnold Tait, Lance Bybee, Les Hooper, Shari Hooper, Gregg Benson, Pat Burns.

7:00 P.M. CITY COUNCIL MEETING

1. **Call to Order.**

2. **Opening Ceremony.**

Council Member Wilhelmsen led the pledge of allegiance and conducted the opening ceremony.

3. **Oaths of Office.**

Jennie Knight administered the Oaths of Office to Cynthia Benson, Nicholas Taylor, and Alicia Davis.

4. **Consent Items.**
   a. Approve the minutes of May 11, 2021 as presented.

MOTION: Council Member Christensen motioned to approve the minutes of May 11, 2021 as presented. Council Member Wilhelmsen seconded the motion. All Council Members voted aye.

5. **Business Items.**
   a. **PUBLIC HEARING:** Harrisville City Council will take comments for or against Harrisville Resolution 21-06; a resolution amending the city, agency, and district budget for FY 2021 in accordance with UCA §10-6-127.

Lynn Fortie explained the inclusion of new monies from the CaresAct Grant received by the city. Prior CaresAct revenue account was $0. This account will increase to $370,000. The expenditures will be as follows for revenues to equal expenditures. General Fund: The professional planner account will increase to $15,000. Building inspection and planning, specifically plans checks, will increase to $10,000. Capital Project: Changes include streets and sidewalks money through the Larsen Lane Project shall increase to $350,001. Buildings and remodel to increase by $20,000. Equipment to increase to $4,501 to cover new equipment costs.

MOTION: Council Member Weiss motioned to open the public hearing to take comments for or against Harrisville Resolution 21-06; a resolution amending the city, agency, and

district budget for FY 2021 in accordance with UCA §10-6-127. Council Member Wilhelmsen seconded the motion. All Council Members voted aye. Motion passed.

No public comments were offered.

MOTION: Council Member Weiss motioned to close the public hearing. Council Member Christensen seconded the motion. All Council Members voted aye. Motion passed.

b. PUBLIC HEARING: Harrisville City Council will take comments for or against Harrisville Resolution 21-07; a resolution adopting the final city, agency, and district budget for FY2022 in accordance with UCA §10-6-113.

Lynn Fortie explained the changes since the tentative budget was adopted. Seasonal Recreation was removed from the recreation budget per Director Fife's request. Wages and benefits for new Deputy City Recorder were added. Wage increase for Court Clerk under Courts Primary wages and benefits. Fund balance was updated to reflect increases. Certified Tax Rate came in today. The new rate for 2021 is 0.000708 increasing our property taxes to $350,308. Lynn also mentioned that a Community Forestry budget line item was created. Council Member Jackson asked if the Deputy City Recorder position was full or part time. Lynn replied full-time with benefits. Bryan Fife clarified budget removal of seasonal recreation to reflect the part-time seasonal. He further clarified the part-time recreation needed to stay. Lynn to verify. Council Member Jackson asked the purpose of the Community Forestry budget item. Bill said for trees. Mayor added that we need this account to maintain our certification.

MOTION: Council Member Jackson motioned to open the public hearing to take comments for or against Harrisville Resolution 21-07; a resolution adopting the final city, agency, and district budget for FY 2022 in accordance with UCA §10-6-113. Council Member Weiss seconded the motion. All Council Members voted aye. Motion passed.

No public comments were offered.

MOTION: Council Member Loveland motioned to close the public hearing. Council Member Wilhelmsen seconded the motion. All Council Members voted aye. Motion passed.

c. Discussion/possible action to adopt Harrisville Resolution 21-06; a resolution amending the city, agency, and district budget for FY2021.

MOTION: Council Member Weiss motioned to adopt Harrisville Resolution 21-06; a resolution amending the city, agency, and district budget for FY2021. Council Member Loveland seconded the motion. A Roll Call Vote was taken.

Council Member Loveland	**Yes**
Council Member Jackson	**Yes**
Council Member Christensen	**Yes**
Council Member Weiss	**Yes**
Council Member Wilhelmsen	**Yes**

Motion passed 5-0.

d. Discussion/possible action to adopt Harrisville Resolution 21-07; a resolution adopting the final city, agency, and district budget for FY2022.

MOTION: Council Member Wilhelmsen motioned to adopt Harrisville Resolution 21-07; a resolution adopting the final city, agency, and district budget for FY2022 with amendments. Council Member Loveland seconded the motion. A Roll Call Vote was taken.

Council Member Loveland	**Yes**
Council Member Jackson	**Yes**
Council Member Christensen	**Yes**
Council Member Weiss	**Yes**
Council Member Wilhelmsen	**Yes**

Motion passed 5-0.

e. Discussion/possible action to grant Final Approval for Warren Hollow Subdivision; a 21-lot subdivision located at approximately 217 East Larsen Lane.

Bill Morris reviewed the engineer's memo due to audio not working for Matt Robinson. Began with reasons for multiple series of planning with the developer. This was due to the proposed subdivision was not within Pineview Water District boundaries and needed annexation to our new Four Mile Special Service District. Under this new district the developer must build their own secondary water system. The main changes from the preliminary plat to the current is because of the parcel immediately east of the subdivision was an existing lot. Inclusion of this parcel made for a lot split but not a foreseeable issue. The engineer found it to be in accordance with city standards and recommends approval. Planning Commission also gave a positive recommendation for approval. Before construction the entire subdivision will need to obtain a Storm Water activity permit and annex the whole subdivision into the special service district. An engineer's estimate will be sent over with final details. Draft subdivision improvement agreement was included. Final set of plans to be stamped by the engineer and accepted prior to the pre-construction meeting. Mayor asked for clarification on the address listed. Pat Burns clarified 217 East. Bill said the addresses can be corrected before recording. Council Member Jackson asked north entrance requirements. Bill clarified that under 30 lots requires only one entrance.

MOTION: Council Member Weiss motioned to grant Final Approval for Warren Hollow Subdivision; a 21-lot subdivision located at approximately 217 East Larsen Lane Subject to the stipulations outlined by staff including a potential address change. Council Member Christensen seconded the motion. All Council Members voted aye. Motion passed.

f. Discussion/possible action for fence replacement/installation for east property line at City Hall.

Bryan Fife reviewed the bid received for installing the fence that was requested by the resident to the east. He needs approval to move forward in a few months. He referenced the galvanized, because that is what we installed at the park. Mayor asked for additional clarification. Bryan said the park owner requested a fence where there is not one currently. Mayor said our standards would include a fence for commercial business and thus the reason for this item being on the agenda. Council Member Loveland asked if there was only one bid. Bryan said he only got one from Pro Link but he could get more if needed. Council Member Loveland asked if he is comfortable with that. Bryan will contact Pro Link upon approval.

DRAFT

MOTION: Council Member Weiss motioned to approve the fence replacement/installation for east property line at City Hall up to $2,802.33 for black galvanized. Council Member Wilhelmsen seconded the motion. A Roll Call Vote was taken.

Council Member Loveland	**Yes**
Council Member Jackson	**Yes**
Council Member Christensen	**Yes**
Council Member Weiss	**Yes**
Council Member Wilhelmsen	**Yes**

Motion passed 5-0.

g. Accreditation Review update for Harrisville Police Department.

Lieutenant Dennis Moore presented. He suggested we look at the Chief Accreditation process. The process has 28 sections. He had been working for the last 2 months, total of about 120 hours, on the accreditation and is approximately 10 sections into it. The accreditation will be all encompassing with the department. He spoke to Val Shupe from the state who heads the Chief of Police Association. Val indicated that there will be a lot of legal changes for law enforcement within the next year. He also stated the accreditation will address many of those changes allowing for the HVC Police Department to be ready when the changes are implemented. The changes will be within the state statues and the federal law in regards to police departments. The accreditation process takes about 18 months. Lt. Moore has a goal of completing the accreditation in 6 months. He is working from home as long as staffing allows to complete this goal. By getting the accreditation it will help up to save on insurance premiums for the department and cut down on costs for the required trainings that are now outsourced. Lexipol, a program that is used by the department, tried to mold the various polices and requirements from both federal and state laws. In the end, all efforts to become accredited will be worth it. Mayor asked for a clarification on Lt. Moore's timeline. Lt. Moore explained that because the city already uses the state program of Lexipol they are well ahead of other cities on obtaining that goal. Lt. Moore said he is finding the department needs to get ahead of the game and stop relying on outsourcing to keep the officers up to date with their trainings. Council Member Jackson explained a little more of the history with the accreditation and the HVC Police Department. He went through the beginnings of the accreditation last year. He feels confident in the Lexipol program and the accreditation. He feels the department should move forward with this. The accreditation would mold the federal law, state law and city standards/polices together.

h. Water Conservation Policy

Mayor Tait led the discussion on what to do about Governor Cox's current announcement on the state water situation. She explained that Lehi City put into effect a water conservation plan. Ogden City implemented theirs last week. Bill brought up the Municipal Code 4.72 regarding our current water conservation plan. Mayor was concerned with public comments and possible hostility between residents. Bill added that surrounding communities are placing restrictions on residents to water on odd or even days based on their house numbers. Council Member Weiss asked that the code be put into the newsletter and the HVC Facebook page. Discussion ensued on what to do with watering and how it will affect the residents and the city. They also discussed the use of the splash pad. Final decision by the council was to reduce the number of hours the splash pad was open from 10 AM – 8 PM to noon – 7 PM. They also finalized watering days for residents would be on an odd or even day passed by your house number with no watering

DRAFT

between 10 AM – 6 PM. This will be in compliance with Governor Cox's declaration given this morning. The Parks department will reduce to two days a week during the day hours to provide the extra water pressure to the residents in the evening hours as per secondary water recommendations to cities. This final decision will be posted about the city, placed on the city website and Facebook page. Mayor to write a declaration with a review in a month to see how conservation efforts are working.

6. **Public Comments -** ***(3 minute maximum)***

Lance Bybee approached Council regarding a noise problem with next door neighbor, who has speakers mounted on the outside of his house. He previously contacted code enforcement but found out we do not have a noise ordinance. Has been calling these things in. He is here to request a noise ordinance be considered. He has approached his neighbor who is not willing to make any changes.

7. **Mayor/Council Follow-Up:**

Mayor said Lagoon offered dignitary days for discounted rate for legislators, for anyone interested.

Mayor said we decided not to open parks until July 1st. She was not going to give preference to one party. She received a partition today for water games tomorrow. Water kickball event and access to the water. Mayor and Council gave discussion on water restrictions. Council Member Loveland and Council Member Jackson said we have made the decision. Council Member Wilhelmsen is okay with it, but outlining being conservative. Council Member Christensen said he would wait for the splash pad until July 1st. Mayor clarified hook ups for water tomorrow. Majority voted no.

Mayor said the election filing has expired, yesterday. Bill said there will be no primary.

Bill Morris said the Council will be meeting on June 22. Mayor reminded Council we used to have two meetings per month. Bill said there might be more going on in the budget during this meeting, he recommended breaking out the golf course.

Bill also said the Council is invited to attend Planning Commission tomorrow night to go over items that are now completed for the golf course development and hear a presentation.

Council Member Wilhelmsen asked how many development projects. Bill outlined the projects.

8. **Adjourn.**

MOTION: Council Member Jackson motioned to adjourn at 8:08pm. Council Member Wilhelmsen seconded the motion. All Council Members voted aye.

_____
MICHELLE TAIT
Mayor

ATTEST:

_____
JENNIE KNIGHT
City Recorder
Approved this 22nd day of June, 2021

DRAFT

HARRISVILLE CITY

363 West Independence • Harrisville, Utah 84404 • (801) 782-4100

MAYOR:

Michelle N. Tait

COUNCIL MEMBERS:

Grover Wilhelmsen
Steve Weiss
Blair Christensen
Max Jackson
Kenny Loveland

M E M O R A N D U M

TO: Harrisville City Mayor and Council

FROM: Jennie Knight, City Recorder

RE: Ordinance 515; Ben Lomond Views Zoning Map Amendment and Master Development Agreement for Ben Lomond Views

Date: June 17, 2021

The proposed Ordinance and Master Development Agreement (MDA), with accompanying exhibits, comes with a positive recommendation from the Planning Commission at their June 9, 2021 meeting with no conditions.

BLD Investments, LLC, submitted an application on September 29, 2020, to rezone approximately 130.80 acres located at approximately 1800 North Highway 89 (Parcels: 11-019-0001, 17-064-0055, 17-064-0002, 17-064-0017, 17-071-0045, 17-071-0055,17-071-0054, 17-071-0001, 17-071-0003) from O-1 and A-1 zones to MU-LP Ben Lomond View Zone. A public hearing was held on November 18, 2021 to receive public comments and a series of work committee meetings consisting of two council members, two planning commissioners, city engineer, staff, and developers have been held over the last ten (10) months to negotiate the proposed Ordinance and MDA with accompanying exhibits.

The complete application, including the MDA with accompanying exhibits, complies with:

- HCMC §11.11.060(1) for Mixed-use Large Project (MU-LP) Sub-zone eligibility requirements: plan map, phasing plans, trails map, transportation plans and studies, sensitive lands map, geotechnical and wetland reports, conservation plan, proposed land uses, proposed site standards, architectural renderings of commercial and residential buildings, landscaping designs, homeowner's association, covenants (CC&Rs), historical resources and preservation, and maintenance plans.
- HCMC §11.11.060(3) required elements for a master development plan which includes intended use and intensity of residential, commercial, office, or retail. Location of infrastructure such as roads, parking, storm water facilities, flood control, utilities, and other infrastructure. Size and type of support uses, open space, recreational amenities, pathways or trails, and related amenities. Designation of present or proposed FEMA floodplain and wetland area. Development standards for residential, commercial, retail office, or other proposed uses including parking areas, dimensions and setbacks. Proposed design standards addressing building height, massing and orientation, open

space, natural resource protection, architectural design and materials, landscaping and buffering standards, parking, and signage. Proposed plan for maintenance of the project, plan for implementing, administering, and enforcing the proposed project. A hold harmless provision ensuring the City, and other public entities servicing the project, cannot be held liable for damages arising out of the MDA.

- HCMC §11.06.030(3) conformance to the 2019 General Plan, relation to surrounding land uses, and development impact on the surrounding area.

Staff Findings: Staff recommends adoption of Harrisville Ordinance 515; Ben Lomond Views Zoning Map Amendment and Master Development Agreement for Ben Lomond Views.

SAMPLE MOTIONS:

1st Sample Motion:
I motion to adopt Harrisville Ordinance 515; Ben Lomond Views Zoning Map Amendment contingent on adoption of the Master Development Agreement for Ben Lomond Views.

2nd Sample Motion:
I motion to adopt Master Development Agreement for Ben Lomond Views.

When Recorded Return to:

Bruce R. Baird
Bruce R. Baird, PLLC
2150 South 1300 East, Suite 500
Salt Lake City, UT 84108

MASTER DEVELOPMENT AGREEMENT
FOR
BEN LOMOND VIEWS

June ___, 2021

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MASTER DEVELOPMENT AGREEMENT FOR
BEN LOMOND VIEWS

THIS MASTER DEVELOPMENT AGREEMENT is made and entered as of the ___ day of June 2021, by and between HARRISVILLE CITY and BLD Investment, LLC, a Utah limited liability company.

RECITALS

A. The capitalized terms used in this MDA are defined in Section 1.2, below.

B. Master Developer is under a contract to purchase and will own as of the Effective Date the Property and is developing the Project on the Property.

C. Contemporaneously with the approval of this MDA the City has approved the Master Plan.

D. Contemporaneously with the approval of this MDA the City has zoned the property "MU-LP – Ben Lomond".

E. The City finds that this MDA and the Master Plan conform with the intent of the City's General Plan.

F. The City has processed this MDA, the Zoning, and the Master Plan pursuant to the applicable provisions of Section 10-9a-501, *et seq.*, of the Act as a land use regulation including holding hearings on the MDA, the Zoning and the Master Plan before the Planning Commission and the City Council.

G. Master Developer and the City desire that the Property be developed in a unified and consistent fashion pursuant to the Master Plan.

H. The Parties acknowledge that development of the Property pursuant to this MDA will result in significant planning and economic benefits to the City, and its residents by, among other things requiring orderly development of the Property as a master planned development and

increasing property tax and other revenues to the community based on improvements to be constructed on the Property.

I. The Parties desire to enter into this MDA to specify the rights and responsibilities of Master Developer to develop the Property as expressed in this MDA and the rights and responsibilities of the City to allow and regulate such development pursuant to the requirements of this MDA.

J. The Parties understand and intend that this MDA is a "development agreement" within the meaning of the Act and entered into pursuant to the terms of the Act.

NOW, THEREFORE, in consideration of the foregoing Recitals, the mutual covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby conclusively acknowledged, the City and Master Developer hereby agree to the following:

TERMS

1. **Incorporation of Recitals and Exhibits/Definitions.**

1.1. **Incorporation.** The foregoing Recitals and Exhibits "A" – "T", whether or not specifically referenced herein are hereby incorporated into this MDA.

1.2. **Definitions.** As used in this MDA, the words and phrases specified below shall have the following meanings:

1.2.1. **Act** means the Land Use, Development, and Management Act, Utah Code Ann. § 10-9a-101 (2020), *et seq.*

1.2.2. **Administrator** means the person designated by the City as the Administrator of this MDA.

1.2.3. **Applicant** means a person or entity submitting a Development Application.

1.2.4. **Ben Lomond Views CRA** means a community reinvestment area created by the City to use certain tax increment financing for City-related infrastructure.

1.2.5. **Buildout** means the completion of all the development on the entire Project in accordance with the approved plans.

1.2.6. **City** means Harrisville City, a Utah municipality.

1.2.7. **City Consultants** means those outside consultants employed by the City in various specialized disciplines such as engineering, planning, traffic, hydrology, or drainage for reviewing certain aspects of the development of the Project.

1.2.8. **City's Future Laws** means the ordinances, policies, standards, and procedures which may be in effect as of a particular time in the future when a Development Application is submitted for a part of the Project and which may or may not be applicable to the Development Application depending upon the provisions of this MDA.

1.2.9. **City's Vested Laws** means the ordinances, policies, standards, and procedures of the City in effect as of the date the City approves this MDA, including the Zoning, a digital copy of which on CD is attached as Exhibit "T".

1.2.10. **Commercial Site Plan** means an application for Intended Uses other than those for purely Residential Dwelling Units.

1.2.11. **Council** means the elected City Council of the City.

1.2.12. **Default** means a material breach of this MDA as specified herein.

1.2.13. **Denial** means a formal denial issued by the final administrative decision-making body of the City for a Development Application but does not include review comments or "redlines" by City staff.

1.2.14. **Design and Site Standards** means those standards for the design, look, and feel of the Project more fully specified in Exhibit "G".

1.2.15. **Development** means the development of a portion of the Property pursuant to an approved Development Application.

1.2.16. **Development Area** means one of the areas that are a part of the Project as conceptually illustrated in the Master Plan.

1.2.17. **Development Application** means an application to the City for development of a portion of the Project including a Subdivision or any other permit, certificate or other authorization from the City required for development of the Project.

1.2.18. **Development Report** means a report containing the information specified in Sections 2.6.9 – 2.6.11.

1.2.19. **Effective Date** means the date that this MDA becomes effective as specified in Section 27, below.

1.2.20. **Excluded Development Area** means that portion of the Property illustrated on the Master Plan, Exhibit "B", which is subject to the special provisions of Section 2.4 below.

1.2.21. **Final Plat** means the recordable map or other graphical representation of land prepared in accordance with the Act or any successor provision, and approved by the City, effectuating a Subdivision of any portion of the Project.

1.2.22. **Four Mile SSD** means a special service district to be created by the City to provide approved public services to the Project, including secondary water (pressurized irrigation), if Developer is unable to arrange for such water through Pineview Water District.

1.2.23. **Intended Uses** means the use of all or portions of the Project for single-family and multi-family residential units, restaurants, public facilities, businesses, commercial areas, professional and other offices, services, open spaces, parks, trails, and other uses as more fully specified in Exhibit "D".

1.2.24. **Master Developer** means BLD Investment, LLC.

1.2.25. **Master Plan** means the conceptual layout for Commercial Development, Residential Dwelling Units, Open Space, and Public Infrastructure for the Project.

1.2.26. **Maximum Residential Units** means the maximum number of Residential Dwelling Units that may be developed on the Property, as detailed in Section 2.2 below, consistent with the Property zoning and as generally depicted in the Master Plan.

1.2.27. **MDA** means this Master Development Agreement including all the Exhibits.

1.2.28. **Millennium Park** means that public park identified on the Master Plan and specifically discussed in the Millennium Park Easement Agreement (the "Millennium Park Agreement").

1.2.29. **Millennium Park Agreement** means that certain easement agreement between Master Developer and the City entered into and recorded contemporaneously with this MDA regarding the use, operation, improvement, maintenance and other aspects of the Millennium Park, the form of which is attached hereto, with descriptive elements, as Exhibit "S".

1.2.30. **Multi-Family Site Plan** means a site plan for a multi-family Development where no Subdivision is required.

1.2.31. **Notice** means any notice to or from any Party to this MDA that is either required or permitted to be given to another party.

1.2.32. **Open Space** shall have the meaning specified in Section 11.01.060 of the City's Municipal Code.

1.2.33. **Outsourcing** means the process of the City contracting with City Consultants or paying overtime to City employees to provide technical support in the review and approval of the various aspects of a Development Application as is more fully set out in this MDA.

1.2.34. **Party/Parties** means, in the singular, Master Developer or the City; in the plural Master Developer and the City.

1.2.35. **Planning Commission** means the City's Planning Commission.

1.2.36. **Project** means the total development to be constructed on the Property pursuant to this MDA with the associated public and private facilities, and all the other aspects approved as part of this MDA.

1.2.37. **Property** means the real property owned by and to be developed by Master Developer more fully described in Exhibit "A".

1.2.38. **PTOS Plan** means the plan for developing, managing, preserving improving the neighborhood parks, trails, and open space in the Project, (excluding Millennium Park), as more fully specified in Exhibit "O".

1.2.39. **Public Infrastructure** means those elements of infrastructure that are planned to be dedicated to the City or other governmental entity as a condition of the approval of a Development Application including, but not limited to, public streets, culinary water utility lines, secondary water utility lines, sanitary sewer lines and storm water facilities.

1.2.40. **Residential Dwelling Unit** means a structure or portion thereof designed and intended for use as a single-family residence, an attached residence, including a condominium and town house, as illustrated on the Master Plan.

1.2.41. **Standards Deviations** means those deviations from existing City development, design, engineering, and other standards, including but not limited to those standards that are included in the City's Vested Laws, which are specified in Exhibit "H" and which are subject to the provisions of Sections 2.1 and 5.1, below.

1.2.42. **Sub-developer** means a person or an entity not "related" (as defined by Section 165 of the Internal Revenue Code) to Master Developer which purchases a Development Area for development.

1.2.43. **Subdivision** means the division of any portion of the Project into developable lots pursuant to the Act and/or the Zoning Ordinance.

1.2.44. **Subdivision Application** means the application to create a Subdivision.

1.2.45. **Zoning** means the "MU-LP – Ben Lomond" zoning for the Property adopted by the City contemporaneously with the approval of this MDA.

1.2.46. **Zoning Ordinance** means the City's Land Use and Development Ordinance adopted pursuant to the Act that was in effect as of the date of this MDA as a part of the City's Vested Laws.

2. **Development of the Project.**

2.1. Compliance with the Master Plan, Design Standards, and this MDA. Development of the Project shall be in accordance with the City's Vested Laws (except as specified in the Standards Deviation, Exhibit "H"), the City's Future Laws (to the extent that these are applicable as otherwise specified in this MDA), the Master Plan, the Design Standards, and this MDA. If there is any conflict between this MDA and the City's Vested Laws, then this MDA shall be controlling.

2.2. Maximum Residential Units/Intended Uses. At Buildout of the Project, Master Developer shall be entitled to have developed the Maximum Residential Units of Six Hundred Forty-Nine (649) Residential Dwelling Units, comprising 425 single family homes, 144 town homes and 80 condominium apartments. An additional fifteen (15) single family home units are currently and provisionally planned in the Excluded Development Area, conditional on a

resolution and remapping of the current flood plain reasonably acceptable to the City, increasing the Maximum Residential Units to 664) and the other Intended Uses as specified in and pursuant to this MDA of the type and in the general location as shown on the Master Plan.

2.3. Limitation and No Guarantee. Master Developer acknowledges that the development of the Maximum Residential Units and every other aspect of the Master Plan requires that each Development Application comply with the City's Vested Laws, the Master Plan, the Design Standards, and this MDA. The City's entry into this MDA does not guarantee that the Master Developer will be able to construct the Maximum Residential Units or any other aspect of the Project until and unless all the applicable requirements of the City's Vested Laws are complied with.

2.4. Excluded Development Area. The Parties acknowledge that development in the Excluded Development Area is currently and potentially impacted by issues related to storm water drainage, a potential flood plain and other issues. It is Parties' intent, and current agreement, as and when those issues are resolved, to pursue and allow development in the Excluded Development Area as illustrated in the Master Plan, and under the terms of this MDA, with the potential addition of up to fifteen (15) Residential Units to the Maximum Residential Units identified in Section 1.2.26, subject to such amendments of this MDA as may reasonably be required.

2.5. Design Standards for Commercial Development and Condominium Units. The Parties acknowledge that the precise design standards for the commercial areas and the two condominium buildings shown on the Master Plan are not yet completed. The Design and Site Standards, Exhibit "G", includes some renderings and other details and design concepts. The Parties shall work cooperatively to amend this MDA within a period consistent with the

sequencing outlined in Section 2.6.6, to include detailed and reasonable design standards for the commercial and condominium uses and to work toward final building exterior designs.

2.6. Sequencing and Relationship of Residential and Commercial Uses.

2.6.1. General Statement. The Parties acknowledge that, separate from and related to the City's interest in the development of Residential Uses within the Development, the City has an interest in the development of areas designated on the Master Plan to include multi-family/condominiums and commercial ("Retail/Office") units, and recognizing that such development is subject to market/economic forces beyond the control of Master Developer, desires certain assurances that Master Developer is and will remain committed to develop the commercial and condominium areas in a timely manner. To that specific end, the Parties agree to the following sequencing plan and related mutual goals:

2.6.2. Prompt Platting/Approval. Master Developer will use its best commercially reasonable efforts actively and promptly to pursue the platting and approval of all residential subdivisions within the Development, including the layout of roads and general infrastructure within those subdivisions, with the goal of satisfying all requirements for approvals within a period of not more than twelve (12) months from the Effective Date of this Agreement. For its part, the City will actively and promptly engage in all reasonable and required review and analysis of Master Developer's subdivision applications with the goal of providing required approvals within the stated target period.

2.6.3. Timely Application Review. The Parties acknowledge that an accelerated sequencing of sub-development to the Parties mutual benefit, including the City's proper and timely review, analysis and consideration of Master Developer's anticipated and separate residential subdivisions within the period stated in subsection 2.6.2, will likely require the supplementation of currently-limited City resources, including overtime expenses or the potential

Outsourcing to third-party engineers and consultants to assist in said reviews and analysis, as provided in Section 7.1 below. In consideration of, and to offset the additional expenses likely to be incurred by the City in those efforts, the Master Developer will deposit with the City within thirty (30) days after the Effective Date One Hundred Fifty Thousand Dollars ($150,000.00) to be held in escrow and applied to the payment of those additional expenses.

2.6.4. Infrastructure Development. Upon approval of all subdivisions by all governmental entities necessary to the approval process, and subject at all times to the requirements and reservations outlined in Subsection 2.6.7 below, Master Developer will promptly and actively, as commercially reasonable, pursue the development and installation of all infrastructure for the entire Development, beginning with the excavation and development of roadways and, conditional upon approval by the applicable utility, continuing with the installation of electric, sewer, water (including secondary water) and cable or fiber lines. Assuming necessary approvals from the City and all utilities by Spring 2022, Master Developer projects, without guarantee, completion of residential infrastructure within twelve (12) months of approval, with appropriate and reasonable adjustments to that timeframe for any delays in approvals beyond June 30, 2022.

2.6.5. Condominium and Commercial Buildings Design. Separately, Master Developer and the City, through its Planning Commission, will actively and in good faith engage in such charrettes as may be necessary to finalize acceptable architectural designs and drawings for the four commercial retail/office buildings and the two condominium buildings, to be constructed in locations generally consistent with the conceptual site plan designs presented by Master Developer within the area of the Master Plan designated for those units. The Parties will cooperate in that process with a mutual and agreed goal of final and approved design and drawings

exclusive of tenant-related work in the commercial buildings, by not later than eighteen (18) months after the Effective Date.

2.6.6. Commercial Building Sequencing. Master Developer shall commence development and construction of the four commercial buildings as follows:

2.6.6.1. Construction of two of the four commercial buildings will commence by not later than the date on which a total of 70% of all residential units have been completed and receive certificates of occupancy;

2.6.6.2. Construction of the remaining two of the four commercial buildings will commence by not later than the date on which a total of 85% of the residential units have been completed and receive certificates of occupancy.

2.6.7. Development Area Sales. The City acknowledges that the precise location and details of the public improvements, lot layout and design and any other similar item regarding the development of a particular Development Area, may not be known at the time of the creation of or sale of a Development Area. Master Developer may obtain approval of a division or partition of the Property as is provided in Section 10-9a-103(65)(c)(v) of the Act that does not create any individually developable lots in the Development Area without being subject to any requirement in the City's Vested Laws to complete or provide security for any Public Infrastructure at the time of such subdivision. The responsibility for completing and providing security for completion of any Public Infrastructure in the Development Area shall be that of the Master Developer or a Sub-developer upon a subsequent re-Subdivision of the Development Area that creates individually developable lots or upon the approval of a Commercial Site Plan or Multi-family Site Plan. However, construction of improvements shall not be allowed until the Master Developer or Sub-developer complies with the City's Vested Laws.

2.6.8. Transfers of Residential Dwelling Units and Other Intended Uses. The Master Plan provides that Residential Dwelling Units and Other Intended Uses may be transferred between or among Development Areas by Master Developer subject to certain limited and specified parameters as a matter of right without any approvals being required by the City.

2.6.9. Accounting for Residential Dwelling Units and Other Intended Uses for Development Areas developed by Master Developer. At the recordation of a Final Plat or Commercial Site Plan for any Development Application for areas to be developed by Master Developer, Master Developer shall provide the City a Development Report showing any Residential Dwelling Units or other Intended Uses used with the Development Application and the number of Residential Dwelling Units and other Intended Uses remaining with Master Developer for the remaining Project. The Development Report shall also account for any required Open Space.

2.6.10. Accounting for Residential Dwelling Units and Other Intended Uses for Development Areas Sold to Sub-developers. Any Development Area sold by Master Developer to a Sub-developer shall include the transfer of a specified portion of the Maximum Residential Units and, for any non-residential Intended Use, shall specify the amount and type of any such other use sold with the Development Area. At the recordation of a Final Plat or other document of conveyance for any Development Area sold to a Sub-developer, Master Developer shall provide the City a Development Report showing the ownership of the Development Area(s) sold, the portion of the Maximum Residential Units and/or other type of Intended Use transferred with the Development Area(s), the amount of the Maximum Residential Units and other Intended Uses remaining with Master Developer and any material effects of the sale on the Master Plan.

2.6.11. Return of Unused Residential Dwelling Units or Other Intended Uses. If any portion of the Maximum Residential Units or other Intended Uses transferred to a

Sub-developer are unused by the Sub-developer at the time the Development Areas transferred with such Density receives approval for a Development Application for the final portion of such transferred Development Areas, the unused portion of the transferred Maximum Residential Units or other Intended Uses shall automatically revert back to Master Developer and the Master Developer shall file with the City a Development Report.

3. **Vested Rights.**

3.1. Vested Rights Granted by Approval of this MDA. To the maximum extent permissible under the laws of Utah and the United States and at equity, the Parties intend that this MDA grants Master Developer all rights to develop the Project in fulfillment of this MDA, the City's Vested Laws, the Zoning, and the Master Plan, except as specifically provided herein. The Parties specifically intend that this MDA grant to Master Developer "vested rights" as that term is construed in Utah's common law and pursuant to Section 10-9a-509 of the Act.

3.2. Exceptions. The restrictions on the applicability of the City's Future Laws to the Project as specified in Section 3.1 are subject to only the following exceptions:

3.2.1. Master Developer Agreement. City's Future Laws that Master Developer agrees in writing to the application thereof to the Project;

3.2.2. State and Federal Compliance. City's Future Laws which are generally applicable to all properties in the City, and which are required to comply with State and Federal laws and regulations affecting the Project;

3.2.3. Codes. Any City's Future Laws that are updates or amendments to existing building, plumbing, mechanical, electrical, dangerous buildings, drainage, flood plain or similar construction or safety related codes, such as the International Building Code, the APWA Specifications, AAHSTO Standards, the Manual on Uniform Traffic Control Devices, the International Residential Code or similar standards that are generated by a nationally or statewide

recognized construction/safety organization, or by the State or Federal governments and are required to meet legitimate concerns related to public health, safety or welfare;

3.2.4. Regulations of other service providers. Any changes in laws, rules or regulations of any other entity that provides services to the Project.

3.2.5. Taxes. Taxes, or modifications thereto, so long as such taxes are lawfully imposed and charged uniformly by the City to all properties, applications, persons, and entities similarly situated;

3.2.6. Fees. Changes to the amounts of fees for the processing of Development Applications that are generally applicable to all development within the City (or a portion of the City as specified in the lawfully adopted fee schedule) and which are adopted pursuant to State law;

3.2.7. Impact Fees. Impact Fees or modifications thereto which are lawfully adopted, and imposed by the City and which meet all requirements of the U. S. Constitution, Utah Constitution, law, and applicable statutes, including but not limited to Utah Code Ann. § 11-36a-101 (2020), *et seq.*;

3.2.8. Planning and Zoning Modification. Changes by the City to its planning principles and design standards, provided that such changes do not work to reduce the Maximum Residential Units, are generally applicable across the entire City and do not materially and unreasonably increase the costs or net financial results of any Development Area; or

3.2.9. Compelling, Countervailing Interest. Laws, rules, or regulations that the City's land use authority finds on the record, are necessary to avoid jeopardizing a compelling, countervailing public interest pursuant to Utah Code Ann. § 10-9a-509(1)(a)(i) (2020).

4. **Term of Agreement.** This MDA shall expire on December 31, 2031. If Master Developer has not been declared to be currently in Default as of December 31, 2031 (and if any such Default is not being cured), then this MDA shall be automatically extended until December 31, 2036. This MDA shall also terminate automatically at Buildout.

5. **Public Infrastructure.**

5.1. Construction by Master Developer. Master Developer shall have the right and the obligation to construct or cause to be constructed and installed all Public Infrastructure reasonably and lawfully required as a condition of approval of the Development Application. The Public Infrastructure shall be designed and constructed in Compliance with all applicable standards in the City's Vested Laws (except for those exceptions specified in the Standards Deviations, Exhibit "H") and, also, with any other Federal, State, or County laws, rules, or regulations. The Public Infrastructure shall be consistent with and fulfill the purposes of adopted plans for such infrastructure that are a part of the City's Vested Laws.

5.2. Bonding. If and to the extent required by the City's Vested Laws, unless otherwise provided by the Act, security for any required improvements shall be provided in a form acceptable to the City as specified in the City's Vested Laws. Partial releases of any such required security shall be made as work progresses based on the City's Vested Laws.

6. **Parks, Trails and Open Space/Millennium Park.** Master Developer shall be responsible for creating, dedicating, and improving the parks, trails and open space in the Project as specified in the PTOS Plan. The existing Millennium Park (excluded from the PTOS Plan) shall be operated, improved, maintained, and managed pursuant to the Millennium Park Agreement.

7. **Processing of Development Applications.**

7.1. Processing of Development Applications. Within ten (10) business days after receipt of a Development Application and upon the request of Applicant, the City and Applicant will confer in good faith concerning the projected timeline for processing the application and to determine the scope of any supplementation or Outsourcing that may be necessary to meet the desired schedule. If the City determines that Outsourcing is necessary and appropriate to the timely processing of any Development Application as agreed between the Parties, then the City shall promptly estimate the reasonably anticipated differential cost of Outsourcing in the manner selected by the Master Developer or Sub-developer in good faith consultation with the City. This may include either an agreement to pay overtime to the City employees or the hiring of a City Consultant acceptable to the Parties and selected in the manner consistent with that provided in Section 7.3 below for expert consultants. If the Master Developer notifies the City that it desires to proceed with the Outsourcing based on the City's reasonable estimate of costs, the City may apply funds deposited by Master Developer under Section 2.6.3 above against the differential cost. Similarly, if a Sub-developer notifies the City that it desires to proceed with the Outsourcing based on the City's estimate of costs, then the Sub-developer shall deposit in advance with the City the estimated differential cost. In either case, with deposits secured, the City shall promptly proceed with having the work Outsourced in a manner agreed. Upon completion of the Outsourcing services and the provision by the City of an invoice (with such reasonable supporting documentation as may be requested by Master Developer or Sub-developer) for the actual differential cost of Outsourcing, Master Developer or the Sub-developer shall, within ten (10) business days pay or receive credit (as the case may be) for any difference between the estimated differential cost deposited for the Outsourcing and the actual cost differential. If at any time the Applicant becomes delinquent in the payment of any Outsourcing fees, the City may postpone all

work until the Applicant is paid current with the City for all outstanding fees related to the Development Application.

7.2. Acceptance of Certifications Required for Development Applications. Any Development Application requiring the signature, endorsement, or certification and/or stamping by a person holding a license or professional certification required by the State of Utah in a particular discipline shall be so signed, endorsed, certified, or stamped signifying that the contents of the Development Application comply with the applicable regulatory standards of the City. The City should endeavor to make all redlines, comments or suggestions at the time of the first review of the Development Application unless any changes to the Development Application raise new issues that need to be addressed.

7.3. Independent Technical Analyses for Development Applications. If the City needs technical expertise beyond the City's internal resources to determine impacts of a Development Application such as for structures, bridges, site infrastructure, and other similar matters which are not required by the City's Vested Laws to be certified by such experts as part of a Development Application, the City may engage such experts as City Consultants with the actual and reasonable costs being the responsibility of Applicant. The City Consultant undertaking any review by the City required or permitted by this MDA shall be selected from a list generated by the City for each such City review pursuant to a "request for proposal" process or as otherwise allowed by City ordinances or regulations. Applicant may, in its sole discretion, strike from the list of qualified proposers any of such proposed consultants so long as at least three (3) qualified proposers remain for selection. The anticipated cost and timeliness of such review may be a factor in selecting the City Consultant. The actual and reasonable costs of a City Consultant shall be the responsibility of Applicant. The work of the City Consultant shall be completed in a commercially reasonable time.

7.4. Processing of Residential Subdivisions, Commercial Site Plans and Multi-Family Site Plans. Residential Subdivisions, Commercial Site Plans and Multi-Family Site Plans shall be processed by the "Land Use Authority", pursuant to the standards and processes of Chapter 11.22, subject to Standards Deviations, and shall be approved if they are in compliance with the Master Plan.

7.5. City Denial of a Development Application. If the City issues a Denial of a Development Application, the City shall provide a written determination advising the Applicant of the reasons for denial including specifying the reasons the City believes that the Development Application is not consistent with this MDA, the Zoning and/or the City's Vested Laws (or, if applicable, the City's Future Laws).

7.6. Meet and Confer regarding Development Application Denials. The City and Applicant shall meet within ten (10) business days after any Denial to resolve the issues specified in the Denial of a Development Application.

7.7. City Denials of Development Applications Based on Denials from Non-City Agencies. If the City's denial of a Development Application is based on the denial of the Development Application by a non-City agency, Applicant shall appeal any such denial through the appropriate procedures for such a decision and not through the processes specified below.

7.8. Mediation of Development Application Denials.

7.8.1. Issues Subject to Mediation. Issues resulting from the City's Denial of a Development Application for reasons other than denials from non-City agencies and that the parties are not able to resolve by "Meet and Confer" shall be mediated and include, but are not necessarily limited to, the following:

7.8.1.1. the location of On-Site Infrastructure, including utility lines and stub outs to adjacent developments,

7.8.1.2. right-of-way modifications that do not involve the altering or vacating of a previously dedicated public right-of-way,

7.8.1.3. interpretations, minor technical edits, or inconsistencies necessary to clarify or modify documents consistent with their intended purpose of the Development Standards,

7.8.1.4. Justifications for, selection of and costs of Outsourcing under Sections 7.1 and 7.4;

7.8.1.5. the scope, conditions and amounts of any required development or infrastructure bond or related security and any impact fees; and

7.8.1.6. the issuance of subdivision applications and related review of project-wide systems designs.

7.8.2. Mediation Process. If the City and Applicant are unable to resolve a disagreement subject to mediation, the parties shall attempt within fifteen (15) calendar days to appoint a mutually acceptable mediator with knowledge of the legal issue in dispute. If the City and Applicant are unable to agree on a single acceptable mediator, they shall each, within fifteen (15) calendar days, appoint their own representative. These two representatives shall, between them, choose the single mediator. Applicant and the City shall split the fees of the chosen mediator, each Party paying 50% of the fees. The chosen mediator shall, within fifteen (15) calendar days, review the positions of the parties regarding the mediation issue and promptly attempt to mediate the issue between the parties. If the parties are unable to reach agreement, the mediator shall notify the parties in writing of the resolution that the mediator deems appropriate. The mediator's opinion shall not be binding on the parties.

7.9. Arbitration of Development Application Objections.

7.9.1. Arbitration Process. If the City and Applicant are unable to resolve an issue through mediation, the parties may then attempt within fifteen (15) calendar days to appoint a mutually acceptable arbitrator with knowledge of the legal issue in dispute. If the parties are unable to agree on a single acceptable arbitrator, they shall each, within fifteen (15) calendar days, appoint their own individual appropriate expert. These two experts shall, between them, choose the single arbitrator. Applicant and the City shall split the fees of the chosen arbitrator, each Party paying 50% of the fees. The chosen arbitrator shall within fifteen (15) calendar days, review the positions of the parties regarding the arbitration issue and render a decision. The arbitrator shall ask the prevailing party to draft a proposed order for consideration and objection by the other side. Upon adoption by the arbitrator, and consideration of such objections, the arbitrator's decision shall be final and binding upon both parties. If the arbitrator determines as a part of the decision that the City's or Applicant's position was not only incorrect but was also maintained unreasonably and not in good faith, then the arbitrator may order the City or Applicant to pay the arbitrator's fees.

8. **Application Under City's Future Laws.** Without waiving any rights granted by this MDA, Master Developer may at any time, choose to submit a Development Application for all or part of the Project under the City's Future Laws in effect at the time of the Development Application so long as Master Developer is not in current breach of this Agreement.

9. **Default.**

9.1. Notice. If Master Developer or a Sub-developer or the City fails to perform their respective obligations hereunder or to comply with the terms hereof, the Party believing that a Default has occurred shall provide Notice to the other Party. If the City believes that the Default has been committed by a Sub-developer, then the City shall also provide a courtesy copy of the Notice to Master Developer.

9.2. Contents of the Notice of Default. The Notice of Default shall:

9.2.1. Specific Claim. Specify the claimed event of Default;

9.2.2. Applicable Provisions. Identify with particularity the provisions of any applicable law, rule, regulation, or provision of this MDA that is claimed to be in Default;

9.2.3. Materiality. Identify why the Default is claimed to be material; and

9.2.4. Optional Cure. If the City chooses, in its discretion, it may propose a method and time for curing the Default which shall be of no less than thirty (30) calendar days duration.

9.3. Meet and Confer, Mediation, Arbitration. Upon the issuance of a Notice of Default the parties shall engage in the "Meet and Confer" and "Mediation" processes specified in Sections 7.6 and 7.8. If the claimed Default is subject to Arbitration as provided in Section 7.9, then the parties shall follow such processes.

9.4. Remedies. If the parties are not able to resolve the Default by "Meet and Confer" or by "Mediation", and if the Default is not subject to arbitration, then the parties may have the following remedies:

9.4.1. Law and Equity. All rights and remedies available at law and in equity, including, but not limited to, injunctive relief and/or specific performance.

9.4.2. Security. The right to draw on any security posted or provided in connection with the Project and relating to remedying of the Default.

9.4.3. Future Approvals. The right to withhold all further reviews, approvals, licenses, building permits and/or other permits for development of the Project in the case of a default by Master Developer, or in the case of a default by a Sub-developer, development of those Development Areas owned by the Sub-developer until the Default has been cured or a

bond has been posted to secure satisfaction of the default. Building permits or Certificates of Occupancy may not be withheld from any Development Area sold to a Sub-developer based on any Default of the Master Developer unless that Default of the Master Developer is such that the Public Infrastructure required to service a Development Area owned by a Sub-Developer is not available to service the Development Area. Nor shall any Default by a Sub-developer permit the withholding of any Development Applications for Master Developer or any other Sub-developer that is not in Default.

9.5. Public Meeting. Before any remedy in Section 9.4 may be imposed by the City, the party allegedly in Default shall be afforded the right to attend a public meeting before the City Council and address the City Council regarding the claimed Default.

9.6. Emergency Defaults. Anything in this MDA notwithstanding, if the City Council finds on the record that a default materially impairs a compelling, countervailing interest of the City and that any delays in imposing such a default would also impair a compelling, countervailing interest of the City, then the City may impose the remedies of Section 9.4 without the requirements of Section 9.5. The City shall give Notice to Master Developer and/or any applicable Sub-developer of any public meeting at which an emergency default is to be considered and the Master Developer and/or any applicable Sub-developer shall be allowed to address the City Council at that meeting regarding the claimed emergency Default.

9.7. Extended Cure Period. If any Default cannot be reasonably cured within thirty (30) calendar days, then such cure period shall be extended so long as the defaulting party is pursuing a cure with reasonable diligence.

9.8. Default of Assignee. A default of any obligations assumed by an assignee shall not be deemed a default of Master Developer.

9.9. Limitation on Recovery for Default – No Damages. Anything in this MDA notwithstanding, no Party shall be entitled to any claim for any monetary damages as a result of any breach of this MDA and each Party waives any claims thereto. The sole remedy available to Master Developer or any Sub-developer shall be that of specific performance.

10. **Notices.** All notices required or permitted under this MDA shall, in addition to any other means of transmission, be given in writing by certified mail and regular mail to the following address:

To the Master Developer:

BLD Investment, LLC
Attention: William Scott
156 Place Road West
Hinesburg, VT 05461
Wscott8@gmail.com

BLD Investment, LLC
Attention: Doug Palermo
51 West Center St. #644
Orem, UT 84057
depnorfolk@gmail.com

With a Copy to:

Bruce R. Baird
Bruce R. Baird PLLC
2150 South 1300 East, Suite 500
Salt Lake City, UT 84106
bbaird@difficultdirt.com

To the City:

Harrisville City
Attn: City Administrator
Bill Morris
363 West Independence Blvd.
Harrisville, UT 84404
bmorris@cityofharrisville.com
(801) 782-4100

With a Copy to:

Harrisville City
Attn: City Attorney
Bill Morris
363 West Independence Blvd.
Harrisville, UT 84404
bmorris@cityofharrisville.com
(801) 782-4100

11. **Effectiveness of Notice.** Except as otherwise provided in this MDA, each Notice shall be effective and shall be deemed delivered on the earlier of:

11.1. Hand Delivery. Its actual receipt, if delivered personally, by courier service, or by facsimile provided that a copy of the facsimile Notice is mailed or personally delivered as set forth herein on the same day and the sending party has confirmation of transmission receipt of the Notice. If the copy is not sent on the same day, then notice shall be deemed effective the date that the mailing or personal delivery occurs.

11.2. Electronic Delivery. Its actual receipt if delivered electronically by email provided that a copy of the email is printed out in physical form and mailed or personally delivered as set forth herein on the same day and the sending party has an electronic receipt of the delivery of the Notice. If the copy is not sent on the same day, then notice shall be deemed effective the date that the mailing or personal delivery occurs.

11.3. Mailing. On the day the Notice is postmarked for mailing, postage prepaid, by First Class or Certified United States Mail and actually deposited in or delivered to the United States Mail. Any party may change its address for Notice under this MDA by giving written Notice to the other party in accordance with the provisions of this Section.

12. **Secondary Water/Consent to Four Mile SSD.** Master Developer shall be responsible to furnish sufficient water rights to support secondary water service sufficient to satisfy requirements for the Project. If such service is not available from or through Pineview Water

District, Master Developer agrees to coordinate such service from the Four Mile SSD, previously formed to provide authorized services to areas of the City including the Project, including any Project-specific services for which the Ben Lomond Views CRA is required, but may be unable, to provide under applicable CC&Rs.

13. **Headings.** The captions used in this MDA are for convenience only and are not intended to be substantive provisions or evidence of intent.

14. **No Third-Party Rights/No Joint Venture.** This MDA does not create a joint venture relationship, partnership or agency relationship between the City or Master Developer. Further, the parties do not intend this MDA to create any third-party beneficiary rights. The Parties acknowledge that this MDA refers to a private development and that the City has no interest in, responsibility for or duty to any third parties concerning any improvements to the Property or unless the City has accepted the dedication of such improvements at which time all rights and responsibilities—except for warranty bond requirements under City's Vested Laws and as allowed by state law—for the dedicated public improvement shall be the City's.

15. **Hold Harmless.** Master Developer hereby covenants to indemnify, defend, and hold the City harmless from any claims made by any third parties regarding the City's entry into this MDA and the City's performance of any of its obligation under this MDA.

16. **Assignability.** The rights and responsibilities of Master Developer under this MDA may be assigned in whole or in part, respectively, by Master Developer with the consent of the City as provided herein, which consent may not unreasonably be withheld.

16.1. Sale of Lots. Master Developer's selling or conveying lots in any approved Subdivision or Development Areas to builders, users, or Sub-developers, shall not be deemed to be an "assignment" subject to the above-referenced approval by the City unless specifically designated as such an assignment by Master Developer.

16.2. Related Entity. Master Developer's transfer of all or any part of the Property to any entity "related" to Master Developer (as defined by regulations of the Internal Revenue Service in Section 165), Master Developer's entry into a joint venture for the development of the Project or Master Developer's pledging of part or all of the Project as security for financing shall also not be deemed to be an "assignment" subject to the above-referenced approval by the City unless specifically designated as such an assignment by the Master Developer. Master Developer shall give the City Notice of any event specified in this sub-section within fifteen (15) calendar days after the event has occurred. Such Notice shall include providing the City with all necessary contact information for the newly responsible party.

16.3. Notice. Master Developer shall give Notice to the City of any proposed assignment and provide such information regarding the proposed assignee that the City may reasonably request in making the evaluation permitted under this Section. Such Notice shall include providing the City with all necessary contact information for the proposed assignee.

16.4. Time for Objection. Unless the City objects in writing within fifteen (15) calendar days of notice, the City shall be deemed to have approved of and consented to the assignment.

16.5. Partial Assignment. If any proposed assignment is for less than all of Master Developer's rights and responsibilities, then the assignee shall be responsible for the performance of each of the obligations contained in this MDA to which the assignee succeeds. Upon any such approved partial assignment Master Developer shall not be released from any future obligations as to those obligations which are assigned but shall remain responsible for the performance of any obligations herein.

16.6. Denial. The City may only withhold its consent to an assignment of Master Developer's rights hereunder if the City is not reasonably satisfied of the proposed assignee's

financial ability to perform the obligations of Master Developer proposed to be assigned or there is an existing breach of a development obligation owed to the City by the assignee or related entity that has not either been cured or in the process of being cured in a manner acceptable to the City. Any refusal of the City to accept an assignment shall be subject to "Meet and Confer" and "Mediation" processes specified in Sections 7.6 and 7.8.1. If the denial arises in the context of any dispute that is subject to Arbitration, then the Parties shall follow such processes.

16.7. Assignees Bound by MDA. Any assignee shall consent in writing to be bound by the assigned terms and conditions of this MDA as a condition precedent to the effectiveness of the assignment. That consent shall specifically acknowledge the provisions of Section 2.

17. **Binding Effect.** If Master Developer sells or conveys Development Areas of lands to Sub-developers or related parties, the lands so sold and conveyed shall bear the same rights, privileges, configurations, and number of Residential Dwelling Units as applicable to such Development Area and be subject to the same limitations and rights of the City when owned by Master Developer and as set forth in this MDA without any required approval, review, or consent by the City except as otherwise provided herein.

18. **No Waiver.** Failure of any Party hereto to exercise any right hereunder shall not be deemed a waiver of any such right and shall not affect the right of such party to exercise at some future date any such right or any other right it may have.

19. **Severability.** If any provision of this MDA is held by a court of competent jurisdiction to be invalid for any reason, the Parties consider and intend that this MDA shall be deemed amended to the extent necessary to make it consistent with such decision and the balance of this MDA shall remain in full force and affect.

20. **Force Majeure.** Any prevention, delay or stoppage of the performance of any obligation under this Agreement which is due to strikes, labor disputes, inability to obtain labor, materials, equipment or reasonable substitutes therefor; acts of nature, governmental restrictions, regulations or controls, judicial orders, enemy or hostile government actions, wars, civil commotions, fires or other casualties, governmental delays or restrictions resulting from COVID-19 or other declared pandemic, or other causes beyond the reasonable control of the Party obligated to perform hereunder shall excuse performance of the obligation by that Party for a period equal to the duration of that prevention, delay or stoppage.

21. **Time is of the Essence.** Time is of the essence to this MDA and every right or responsibility shall be performed within the times specified.

22. **Appointment of Representatives.** To further the commitment of the Parties to cooperate in the implementation of this MDA, the City and Master Developer each shall designate and appoint a representative to act as a liaison between the City and its various departments and the Master Developer. The initial representative for the City shall be the City Planner as the Administrator of the MDA as defined in Section 1.2.2. The initial representative for Master Developer shall be William Scott. The Parties may change their designated representatives by Notice. The representatives shall be available at all reasonable times to discuss and review the performance of the Parties to this MDA and the development of the Project.

23. **Entire Agreement.** This MDA, and all Exhibits thereto, is the entire agreement between the Parties and may not be amended or modified except either as provided herein or by a subsequent written amendment signed by all Parties.

24. **Estoppel Certificate.** Upon ten (10) calendar days' prior written request by Master Developer or a Sub-developer, the City will execute an estoppel certificate to any third party

certifying that Master Developer or a Sub-developer, as the case may be, at that time is not in default of the terms of this Agreement.

25. **Mutual Drafting.** Each Party has participated in negotiating and drafting this MDA and therefore no provision of this MDA shall be construed for or against any Party based on which Party drafted any portion of this MDA.

26. **Effective Date.** This MDA shall become effective upon Master Developer giving Notice to the City that Master Developer or its Assigns has (have) acquired the Property. Barring a written agreement between the Parties otherwise, if Master Developer has not given the City such Notice on or before December 31, 2021, then this MDA shall become null, void and of no effect.

27. **Recordation and Running with the Land.** This MDA shall be recorded in the chain of title for the Project after the Effective Date. This MDA shall be deemed to run with the land. The data disk of the City's Vested Laws, Exhibit "T", shall not be recorded in the chain of title. A secure copy of Exhibit "T" shall be filed with the City Recorder and each party shall also have an identical copy.

28. **Authority.** The Parties to this MDA each warrant that they have all of the necessary authority to execute this MDA. Specifically, on behalf of the City, the signature of the Mayor of the City is affixed to this MDA lawfully binding the City pursuant to Resolution No. ___ adopted by the City on _____, 2021.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement by and through their respective, duly authorized representatives as of the day and year first herein above written.

* * * * * * SIGNATURE PAGE FOLLOWS * * * * * *

MASTER DEVELOPER	CITY
BLD Investments, LLC	Harrisville City
_____	_____
By: Douglas E. Palermo_____	By: Michelle Tait_____
Its: Manager_____	Its: City Mayor
Date: _____	Date: _____
Approved as to form and legality:	Attest:
_____	_____
City Attorney	City Recorder

CITY ACKNOWLEDGMENT

STATE OF UTAH)
:ss.
COUNTY OF WEBER)

On the ___ day of _____, 2021 personally appeared before me _____who being by me duly sworn, did say that he is the City Mayor of Harrisville City, a political subdivision of the State of Utah, and that said instrument was signed in behalf of the City by authority of its City Council and said City Mayor acknowledged to me that the City executed the same.

_____
NOTARY PUBLIC
My Commission Expires: _____
Residing at: _____

MASTER DEVELOPER ACKNOWLEDGMENT

STATE OF UTAH)
:ss.
COUNTY OF WEBER)

On the ___ day of _____, 2021, personally appeared before me _____, who being by me duly sworn, did say that he is the Manager of BLD Investment, LLC, and that the foregoing instrument was duly authorized by the company at a lawful meeting held by authority of its operating agreement and signed in behalf of said company.

_____
NOTARY PUBLIC
My Commission Expires: _____
Residing at: _____

TABLE OF EXHIBITS

Exhibits:[1]

A	Legal Description of Property	
B	Master Plan Packet	
	B-1	Master Plan (3/28/21)
	B-2	Overall Land Use
	B-3	*Roadway Plan*
	B-4	*Parking Plan*
	B-5	Parks/Open Spaces Plan (PTOS)
	B-6	*Trails Plan*
C	MU-LP Sub Zone Land Use Table	
D	Intended Uses Table	
E	Transportation Plan and ROW Standards	
	E-1	Narrative
	E-2	Traffic Study
	E-3	City Future Transportation Plan
	E-4	*Roadway Plan*
	E-5	Road Sections
	E-6	*Parking Plan*
	E-7	*Trails Plan*
	E-8	City Trails Map
	E-9	Bike Plan
F	Phasing Plan	
	F-1	Narrative
	F-2	Phasing Map
G	Design and Site Standards and Renderings	
	G-1	Narrative
	G-2	Residential Development and Design Standards
	G-3	Preliminary Residential Renderings
	G-4	Commercial Idea Boards
H	Standards Deviations	

[1] Duplicate copies of italicized Exhibits may be included as elements of separate categories of documents required under Harrisville Ord. # 11.11.030.

I	HOA Organizational Documents	
J	HOA CC&Rs	
K	Sensitive Lands Map	
L	Geotechnical Report	
	L-1	Narrative
	L-2	Preliminary Geotechnical Report
M	Conservation Plan	
	M-1	Narrative
	M-2	USAOC Jurisdictional Letter
	M-3	Jurisdictional Letter Attachment
	M-4	Bio-West Aquatic Resources Inventory Report
N	Historic Resources and Preservation	
	N-1	Narrative
	N-2	Cultural Inventory Report
O	Parks, Trails and Open Spaces (PTOS)	
	O-1	Narrative Plan
	O-2	PTOS Plan
	O-3	Parks Plan
	O-4	Landscape Design Plan
P	Maximum Residential Units Table	
Q	Development Areas	
R	Maintenance Plan	
S	Millennium Park Agreement	
	S-1	Easement Agreement
	S-2	Developer Improvements
	S-3	Map of Improvements
T	City’s Vested Laws (CD)	

EXHIBIT A
Legal Description

The land hereinafter referred to is situated in the City of Harrisville, County of Weber, State of UT, and is described as follows:

PARCEL NO. 1:

PARCEL A:

PART OF THE NORTHEAST QUARTER OF SECTION 6, TOWNSHIP 6 NORTH, RANGE 1 WEST OF THE SALT LAKE BASE AND MERIDIAN, UNITED STATES SURVEY:

BEGINNING AT A POINT WHICH IS NORTH 0°28' EAST 628.6 FEET ALONG THE SECTION LINE FROM THE EAST QUARTER CORNER OF SAID SECTION 6; AND RUNNING THENCE SOUTH 89°35' WEST 863.35 FEET TO THE EAST LINE OF THE STATE HIGHWAY; THENCE NORTH 26°51'30" WEST ALONG THE SAID EAST LINE 962.15 FEET; THENCE NORTH 0°33' EAST 972.79 FEET TO THE NORTH SECTION LINE OF THE SAID SECTION 6; THENCE SOUTH 89°53' EAST ALONG THE SECTION LINE 1303.5 FEET TO THE NORTHEAST CORNER OF SAID SECTION 6; THENCE SOUTH 0°28' WEST ALONG THE EAST LINE OF SECTION 6, 1822.20 FEET TO THE POINT OF BEGINNING.

PARCEL B:

A PART OF THE NORTHEAST QUARTER OF SECTION 6, TOWNSHIP 6 NORTH, RANGE 1 WEST, SALT LAKE BASE AND MERIDIAN, U. S. SURVEY:

BEGINNING AT A POINT ON THE NORTH LINE OF SAID QUARTER SECTION 1320 FEET NORTH 89°53' WEST FROM THE NORTHEAST CORNER THEREOF; RUNNING THENCE NORTH 89°53' WEST 460.48 FEET, MORE OR LESS, TO THE NORTHERLY LINE OF THE STATE HIGHWAY; THENCE SOUTH 26°51'30" EAST ALONG SAID HIGHWAY TO A POINT SOUTH OF BEGINNING; THENCE NORTH TO THE PLACE OF BEGINNING.

LESS AND EXCEPT THE FOLLOWING DESCRIBED PROPERTY:

PART OF THE NORTHEAST QUARTER OF SECTION 6, TOWNSHIP 6 NORTH, RANGE 1 WEST, SALT LAKE BASE AND MERIDIAN, U.S. SURVEY, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT THAT IS SOUTH 463.31 FEET AND EAST 1,375.40 FEET FROM THE NORTH QUARTER CORNER OF SECTION 6, BASIS OF BEARINGS BEING NORTH 00°46'49" EAST BETWEEN SAID CORNER AND THE CENTER OF SECTION 31, TOWNSHIP 7 NORTH, RANGE 1 WEST; THENCE NORTH 79°11'00" EAST 60.00 FEET; THENCE SOUTH 10°49'00" EAST 100.00 FEET; THENCE SOUTH 79°11'00" WEST 60.00 FEET; THENCE NORTH 10°40'00" WEST 100 FEET TO THE POINT OF BEGINNING.

PARCEL C:

A PART OF THE NORTHEAST QUARTER OF SECTION 6, TOWNSHIP 6 NORTH, RANGE 1 WEST, SALT LAKE BASE AND MERIDIAN, U. S. SURVEY:

BEGINNING AT A POINT NORTH 89°53' WEST 1303.5 FEET FROM THE NORTHEAST CORNER OF SAID SECTION, AND RUNNING THENCE SOUTH 0°33' WEST TO THE NORTHERLY LINE OF THE STATE HIGHWAY; THENCE NORTH 26°51'30" WEST ALONG SAID HIGHWAY TO THE WEST LINE OF THE NORTHEAST QUARTER OF SAID NORTHEAST QUARTER SECTION; THENCE NORTH ALONG SAID LINE TO THE NORTH LINE OF SAID QUARTER SECTION; THENCE EAST 16.5 FEET TO THE PLACE OF BEGINNING.

PARCEL NO. 2:

A PART OF THE SOUTHWEST QUARTER OF SECTION 32, TOWNSHIP 7 NORTH, RANGE 1 WEST, SALT LAKE BASE AND MERIDIAN, UNITED STATES SURVEY:

BEGINNING AT THE SOUTHWEST CORNER OF SAID QUARTER SECTION AND RUNNING THENCE NORTH 7.77 CHAINS; THENCE SOUTH 63°30' EAST 10.50 CHAINS; THENCE NORTH 61°15' EAST 6.64 CHAINS; THENCE NORTH 42°15' EAST 6.39 CHAINS; THENCE NORTH 8°00' EAST 47.54 FEET TO A POINT 213 FEET SOUTH OF THE SOUTH LINE OF 2000 NORTH STREET; THENCE EAST PARALLEL TO THE SOUTH LINE OF 2000 NORTH STREET

1407.58 FEET TO THE EAST LINE OF THE QUARTER SECTION; THENCE SOUTH ALONG THE QUARTER SECTION LINE 488.65 FEET TO A POINT 3.94 CHAINS NORTH OF THE SOUTHEAST CORNER OF SAID QUARTER SECTION; THENCE SOUTH 82°30' WEST 9.12 CHAINS; THENCE SOUTH 64°30' WEST 422.51 FEET TO A POINT ON THE SOUTH LINE OF SAID QUARTER SECTION; SAID POINT BEING WEST 978.12 FEET FROM THE SOUTHEAST CORNER OF SAID QUARTER SECTION; THENCE WEST 1723.84 FEET, MORE OR LESS, TO THE POINT OF BEGINNING.

EXCEPT AND TOGETHER WITH THAT PROPERTY CONVEYED IN BOUNDARY LINE AGREEMENT RECORDED JANUARY 21, 2000 AS ENTRY NO. 1685613 IN BOOK 2054, PAGE 1054 OF OFFICIAL RECORDS.

ALSO EXCEPT AND TOGETHER WITH THAT PROPERTY CONVEYED IN BOUNDARY LINE AGREEMENT RECORDED SEPTEMBER 26, 2007 AS ENTRY NO. 2294432 OF OFFICIAL RECORDS.

PARCEL NO. 3:

A PART OF THE SOUTHEAST QUARTER OF SECTION 31, TOWNSHIP 7 NORTH, RANGE 1 WEST, SALT LAKE BASE AND MERIDIAN, U.S. SURVEY:

BEGINNING AT A POINT SOUTH 89°36' EAST 1798.6 FEET ALONG THE SECTION LINE FROM THE SOUTHWEST CORNER OF SAID QUARTER SECTION, AND RUNNING THENCE NORTH 0°24' EAST 713.5 FEET; THENCE NORTH 61°30' EAST 376 FEET; THENCE SOUTH 24°45' EAST 71 FEET; THENCE SOUTH 38°30' EAST 75 FEET; THENCE SOUTH 62°30' EAST 551 FEET; THENCE SOUTH 0°45' WEST 515.5 FEET TO THE SECTION LINE; THENCE NORTH 89°36' WEST 885.8 FEET TO BEGINNING.

LESS AND EXCEPT THE FOLLOWING DESCRIBED PROPERTY:

A PART OF THE SOUTHEAST QUARTER SECTION 31, TOWNSHIP 7 NORTH, RANGE 1 WEST, SALT LAKE BASE AND MERIDIAN:

BEGINNING AT A CERTAIN FENCE CORNER WHICH IS SOUTH 89°17' EAST 1462.70 FEET ALONG THE QUARTER SECTION LINE AND THREE COURSES ALONG AN EXISTING FENCE, SOUTH 2°12' WEST 1715.70 FEET, SOUTH 89°36'47" WEST 263.65 FEET AND SOUTH 0°49'40" WEST 341.67 FEET FROM THE NORTHWEST CORNER OF THE SAID SOUTHEAST QUARTER SECTION; RUNNING THENCE NORTH 63°37'50" WEST 494.59 FEET ALONG AN EXISTING FENCE TO A FENCE CORNER; THENCE NORTH 2°30' EAST 35.84 FEET ALONG AN EXISTING FENCE; THENCE SOUTH 65°15' EAST 487.05 FEET ALONG THE SOUTH DEED LINE OF THE PORTER GOOCH PROPERTY TO AN EXISTING FENCE; THENCE SOUTH 0°49'40" WEST 51.58 FEET ALONG AN EXISTING FENCE TO THE POINT OF BEGINNING.

EXCEPT AND TOGETHER WITH THAT PROPERTY CONVEYED IN BOUNDARY LINE AGREEMENT RECORDED JANUARY 21, 2000 AS ENTRY NO. 1685613 IN BOOK 2054, PAGE 1054 OF OFFICIAL RECORDS.

PARCEL NO. 4:

PART OF THE SOUTHEAST QUARTER OF SECTION 31, TOWNSHIP 7 NORTH, RANGE 1 WEST, SALT LAKE BASE AND MERIDIAN, U. S. SURVEY:

BEGINNING SOUTH 89°36' EAST ALONG SECTION LINE 1798.6 FEET FROM THE SOUTHWEST CORNER OF SAID QUARTER SECTION, AND RUNNING THENCE NORTH 89°36' WEST TO STATE ROAD; THENCE NORTH 26°51'30" WEST ALONG ROAD TO A POINT 378.4 FEET NORTH AND 2052.8 FEET WEST OF SOUTHEAST CORNER OF SAID QUARTER SECTION; THENCE NORTH 0°52' EAST TO A POINT NORTH 0°52' EAST 447 FEET FROM SOUTH LINE OF SAID QUARTER SECTION; THENCE NORTH 6°42' WEST 457.1 FEET; THENCE SOUTH 64°30' EAST 850 FEET; THENCE NORTH 61°30' EAST 348 FEET; THENCE SOUTH 0°24' WEST 713.5 FEET TO PLACE OF BEGINNING.

LESS AND EXCEPT THE FOLLOWING DESCRIBED PROPERTY:

PART OF THE SOUTHEAST QUARTER OF SECTION 31, TOWNSHIP 7 NORTH, RANGE 1 WEST, SALT LAKE BASE AND MERIDIAN, U.S. SURVEY, BEING DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF LOT 54, FAIRWAY PARK NO. 2, HARRISVILLE CITY, WEBER COUNTY, UTAH; THENCE SOUTH 63°37'50" EAST ALONG THE SOUTH LINE OF SAID FAIRWAY PARK NO. 2 55.80 FEET TO A POINT ON THE EAST LINE OF SAID LOT 54; THENCE SOUTH 00°00'00" WEST ALONG THE EXTENSION OF THE EAST LINE OF SAID LOT 54 62.83 FEET TO A FENCE; THENCE ALONG SAID FENCE NORTH

71°32'30" WEST 9.71 FEET, NORTH 61°14'00" WEST 30.02 FEET AND NORTH 79°24'18" WEST 14.72 FEET TO A POINT ON THE EXTENSION OF THE WEST LINE OF SAID LOT 54; THENCE NORTH 00°00'00" EAST ALONG SAID EXTENSION 67.39 FEET TO THE POINT OF BEGINNING.

ALSO LESS AND EXCEPT THE FOLLOWING DESCRIBED PROPERTY:

PART OF THE SOUTHEAST QUARTER OF SECTION 31, TOWNSHIP 7 NORTH, RANGE 1 WEST, SALT LAKE BASE AND MERIDIAN, U.S. SURVEY, BEING DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF LOT 59, FAIRWAY PARK NO. 2, HARRISVILLE CITY, WEBER COUNTY, UTAH; THENCE SOUTH 63°37'50" EAST ALONG THE SOUTH LINE OF SAID FAIRWAY PARK NO. 2 AND IT'S EXTENSION 115.72 FEET; THENCE SOUTH 16°42'30" EAST 42.96 FEET TO A FENCE; THENCE ALONG SAID FENCE NORTH 63°38'41" WEST 56.93 FEET, NORTH 67°42'35" WEST 27.99 FEET AND NORTH 71°31'50" WEST 56.16 FEET TO THE EXTENSION OF THE WEST LINE OF SAID LOT 59; THENCE NORTH 20°00'10" EAST ALONG SAID EXTENSION 41.36 FEET TO THE POINT OF BEGINNING.

ALSO LESS AND EXCEPT THE FOLLOWING DESCRIBED PROPERTY:

PART OF THE SOUTHEAST QUARTER OF SECTION 31, TOWNSHIP 7 NORTH, RANGE 1 WEST, SALT LAKE BASE AND MERIDIAN, U.S. SURVEY, BEING DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF LOT 58, FAIRWAY PARK NO. 2, HARRISVILLE CITY, WEBER COUNTY, UTAH; THENCE SOUTH 63°37'50" EAST ALONG THE SOUTH LINE OF SAID FAIRWAY PARK NO. 2 98.26 FEET TO A POINT ON THE EASTERLY LINE OF SAID LOT 58; THENCE SOUTH 20°00'10" WEST ALONG THE EXTENSION OF SAID EASTERLY LINE 41.36 FEET TO A FENCE; THENCE ALONG SAID FENCE THE FOLLOWING FOUR (4) COURSES; (1) NORTH 71°31'50" WEST 32.94 FEET, (2) NORTH 74°11'28" WEST 19.83 FEET, (3) NORTH 76°29'45" WEST 19.46 FEET AND (4) NORTH 71°32'30" WEST 19.58 FEET TO THE EXTENSION OF THE WESTERLY LINE OF LOT 57 OF SAID FAIRWAY PARK NO. 2; THENCE NORTH 00°00'00" ALONG SAID EXTENSION 46.89 FEET TO A POINT ON THE EXTENSION OF THE SOUTHEASTERLY LINE OF SAID LOT 57; THENCE NORTH 57°02'30" EAST ALONG SAID EXTENSION 16.60 FEET TO THE POINT OF BEGINNING.

ALSO LESS AND EXCEPT THE FOLLOWING DESCRIBED PROPERTY:

PART OF THE SOUTHEAST QUARTER OF SECTION SECTION 31, TOWNSHIP 7 NORTH, RANGE 1 WEST, SALT LAKE BASE AND MERIDIAN, U.S. SURVEY, BEING DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF LOT 52, FAIRWAY PARK NO. 2, HARRISVILLE CITY, WEBER COUNTY, UTAH; THENCE SOUTH 00°00'00" EAST ALONG THE EXTENSION OF THE EAST LINE OF SAID FENCE 82.82 FEET TO A FENCE; THENCE ALONG SAID FENCE NORTH 79°24'18", 36.80 FEET, NORTH 06°50'40" WEST 50.13 FEET AND NORTH 06°00'19" EAST 45.08 FEET TO A POINT ON THE SOUTH LINE OF SAID LOT 52; THENCE SOUTH 63°37'50" ALONG SAID SOUTH LINE 41.78 FEET TO THE POINT OF BEGINNING.

ALSO LESS AND EXCEPT THE FOLLOWING DESCRIBED PROPERTY:

PART OF THE SOUTHEAST QUARTER OF SECTION 31, TOWNSHIP 7 NORTH, RANGE 1 WEST, SALT LAKE BASE AND MERIDIAN, U.S. SURVEY, BEING DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF LOT 53, FAIRWAY PARK NO. 2, HARRISVILLE CITY, WEBER COUNTY, UTAH; THENCE SOUTH 63°37'50" EAST ALONG THE SOUTH LINE OF SAID FAIRWAY PARK NO. 2 55.80 FEET TO A POINT ON THE EAST LINE OF SAID LOT 53; THENCE SOUTH 00°00'00" WEST ALONG THE EXTENSION OF THE EAST LINE OF SAID LOT 53 67.39 FEET TO A FENCE; THENCE NORTH 79°24'18" WEST ALONG SAID FENCE 50.86 FEET TO A POINT ON THE EXTENSION OF THE WEST LINE OF SAID LOT 53; THENCE NORTH 00°00'00" EAST ALONG SAID EXTENSION 82.82 FEET TO THE POINT OF BEGINNING.

APN: 11-019-0001
APN: 17-071-0045
APN: 17-064-0002
APN: 17-064-0017
APN: 17-064-0055

PARCEL NO. 5:

The land hereinafter referred to is situated in the City of Harrisville, County of Weber, State of UT, and is described as follows:

The land referred to in this report is situated in the County of Weber, State of Utah, and is described as follows :

(17-071-0001)

A part of the Southwest 1/4 of Section 32, Township 7 North, Range 1 West, Salt Lake Base & Meridian, U.S. Survey: Beginning at a point on the South line of 2000 North Street, said point being North 7.77 chains, South 63°30' East 10.50 chains, North 61°15' East 6.44 chains; North 42°15' East 6.39 chains, and North 8°00' East 289.62 feet and East 1148.43 feet from the Southwest corner of said Section 32; and running thence East along the South line of said street 110 feet; thence South 213 feet; thence West 110 feet; thence North 213 feet to the point of beginning.

(17-071-0004)

Part of the Southwest Quarter of Section 32, Township 7 North, Range 1 West, Salt Lake Base and Meridian, U.S. Survey: Beginning on the South line of road, North 7.77 chains and South 63D30' East 10.5 chains and North 61D15' East 6.64 chains and North 42D15' East 6.39 chains and North 8D East 289.62 feet from the Southwest corner of said Quarter Section; thence North 8D East 16.62 feet; thence East 20.9 chains to East line of said Quarter Section; thence South 16.6 feet to South line of road; thence West 20.9 chains, more or less, to beginning. (Being all within road)

(27-071-0054)

A part of the Southwest Quarter of Section 32, Township 7 North, Range 1 West, Salt Lake Base & Meridian, U.S. Survey: Beginning at a point on the South line of 2000 North Street, said point being North 7.77 chains, South 63°30' East 10.50 chains, North 61°15' East 6.44 chains; North 42°15' East 6.39 chains, and North 8°00' East 289.62 feet from the Southwest corner of said Section 32; and running thence East 1148.43 feet to a point 222.5 feet West of the East line of said 1/4 section; thence South 213 feet; thence West 1162 feet to a point South 8° West 242.08 feet from the point of beginning; thence North 8° East 242.08 feet to the point of beginning.

Together with and Less and Excepting all portions conveyed in Boundary Line Agreement, recorded September 26, 2007 as Entry No. 2294432, of Official Records.

APN: 170710001
APN: 170710004
APN: 170710054

The Land described herein also known by the street address of:
101 East 2000 North, Harrisville, UT 84414

PARCEL NO. 6:

The land hereinafter referred to is situated in the City of Harrisville, County of Weber, State of UT, and is described as follows:

Part of the Southwest Quarter of Section 32, Township 7 North, Range 1 West, Salt Lake Base and Meridian, U.S. Survey: Beginning North 7.77 chains and South 63 deg. 30' East 10.5 chains and North 61 deg. 15' East 6.64 chains and North 42 deg. 15' East 6.39 chains and North 8 deg. East 289.62 feet to the South line of road and East along road 1258.43 feet from the Southwest corner of said Quarter Section; and thence South 213 feet; thence East to East line of said Quarter Section; thence North 213 feet; thence West along road to beginning.

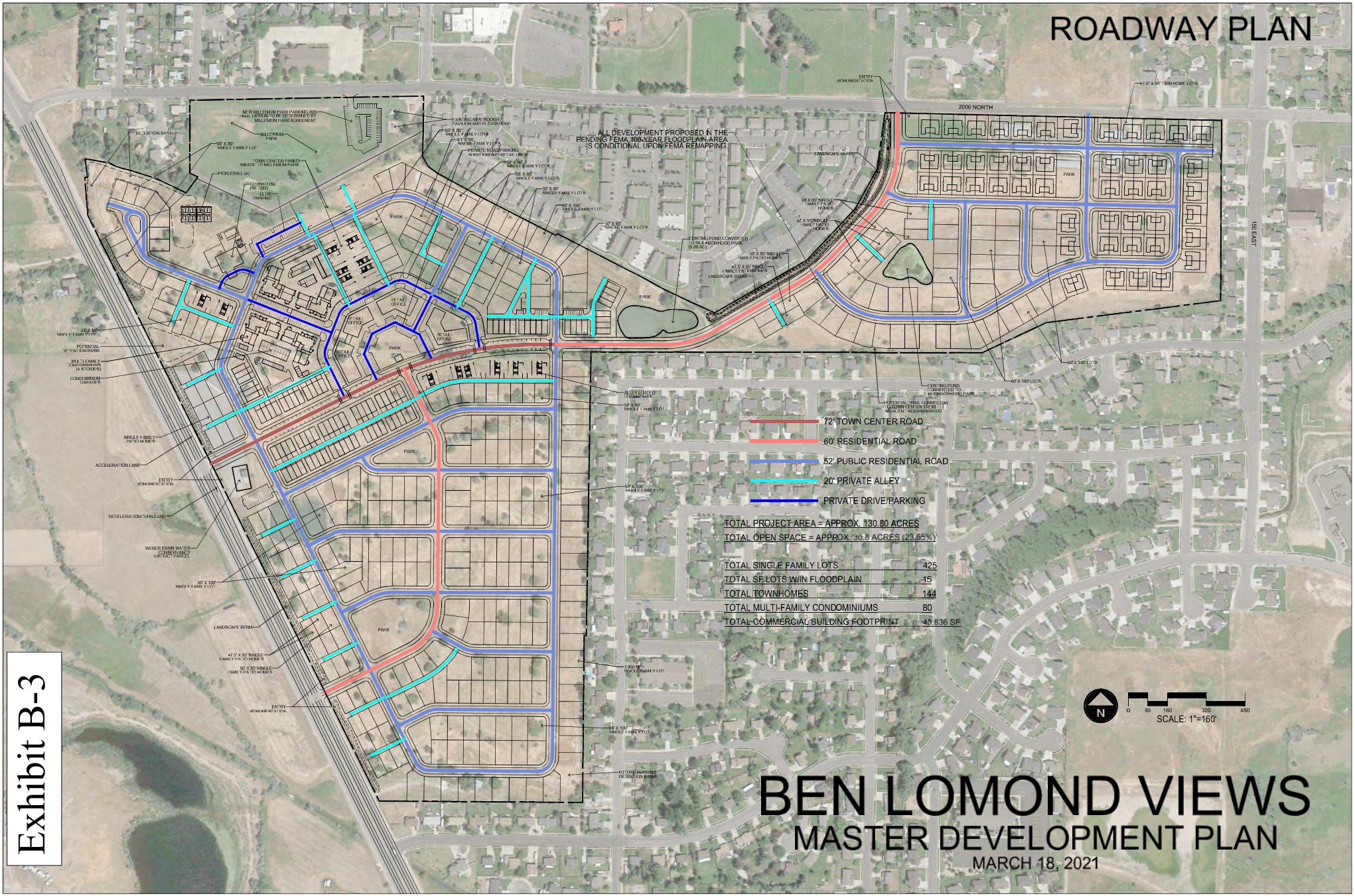
APN: 17-071-0003

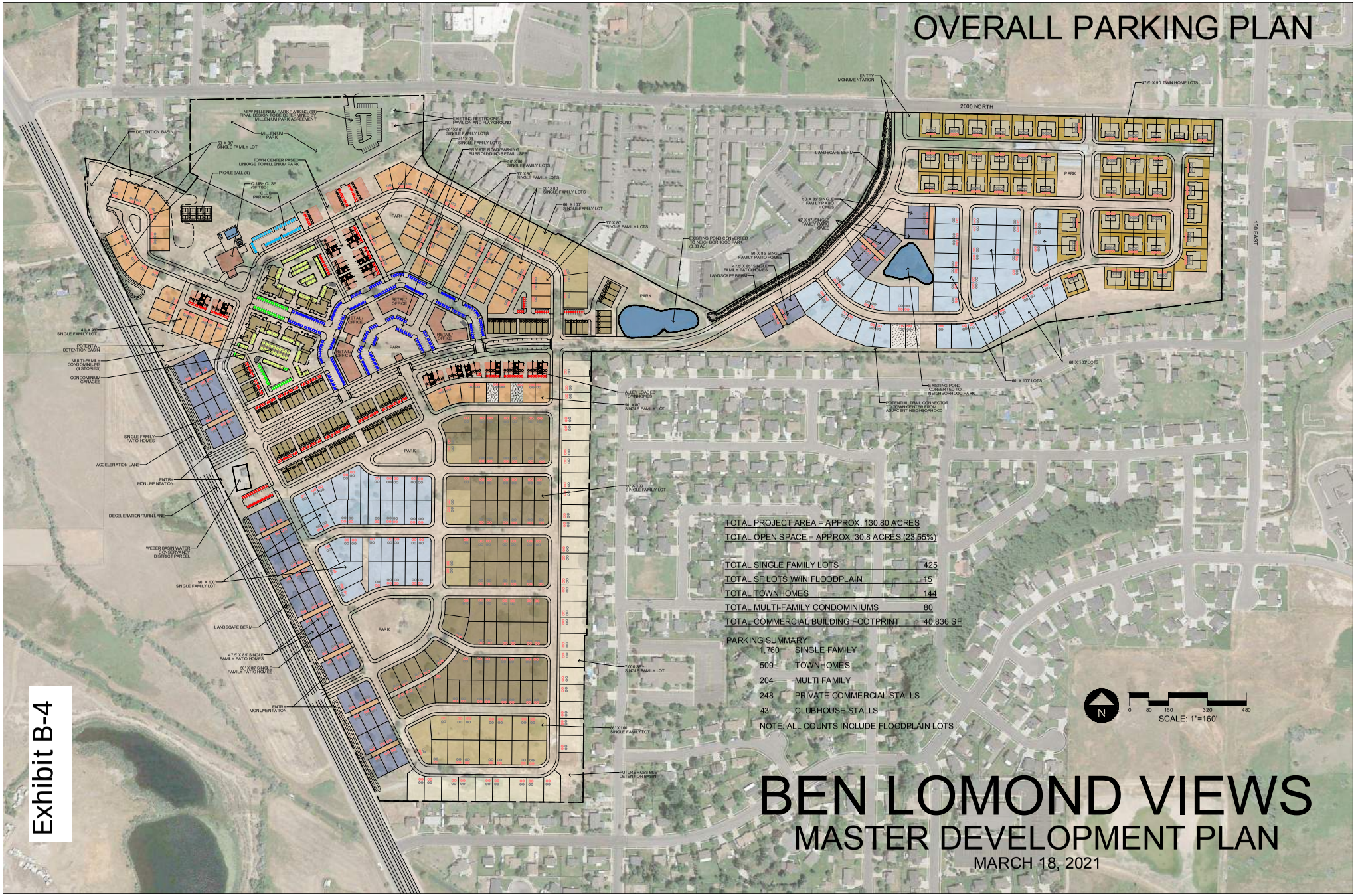
The Land described herein also known by the street address of:
121 East 2000 North, Harrisville, UT 84414

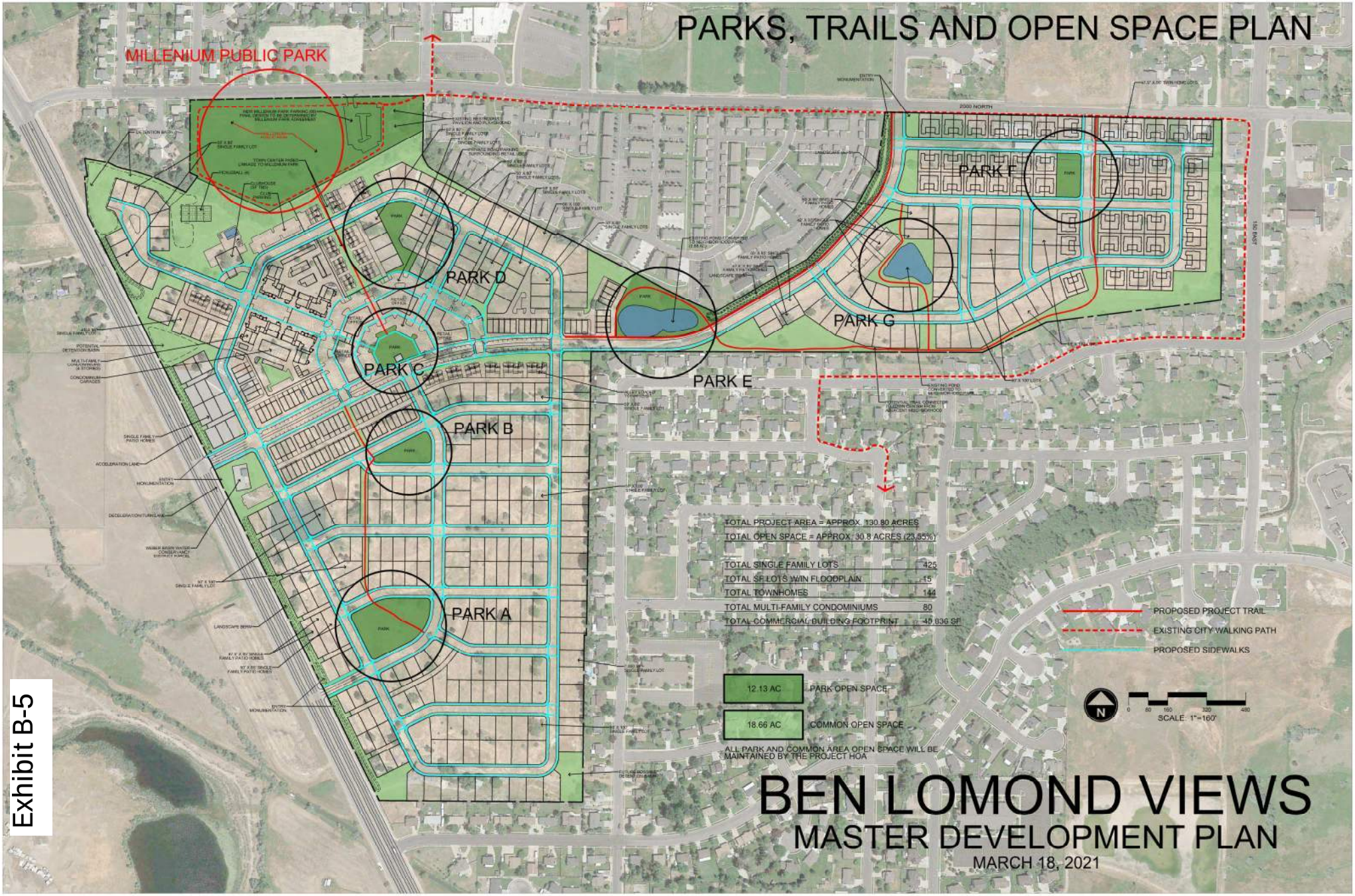
Exhibit B
Master Plan


OVERALL MASTER PLAN
ALL DEVELOPMENT PROPOSED IN THE PENDING FEMA 100-YEAR FLOODPLAIN AREA IS CONDITIONAL UPON FEMA REMAPPING
EXCLUDED DEVELOPMENT AREA
2000 NORTH
TOTAL PROJECT AREA = APPROX. 130.80 ACRES
TOTAL OPEN SPACE = APPROX. 30.8 ACRES (23.55%)
TOTAL SINGLE FAMILY LOTS 425
TOTAL SF LOTS W/IN FLOODPLAIN 15
TOTAL TOWNHOMES 144
TOTAL MULTI-FAMILY CONDOMINIUMS 80
TOTAL COMMERCIAL BUILDING FOOTPRINT 49,936 SF
PENDING FLOODPLAIN
12.13 AC PARK OPEN SPACE
18.66 AC COMMON OPEN SPACE
ALL PARK AND COMMON AREA OPEN SPACE WILL BE MAINTAINED BY THE PROJECT HOA
SCALE: 1"=160'
BEN LOMOND VIEWS
MASTER DEVELOPMENT PLAN
MARCH 18, 2021
Exhibit B-1


OVERALL LAND USE PLAN
2000 NORTH
150 EAST
US HIGHWAY 89
LAND USE LEGEND
4.21 ACRES COMMERCIAL
3.73 ACRES MULTI-FAMILY RESIDENTIAL (CONDOMINIUMS)
8.33 ACRES TOWNHOMES
9.78 ACRES TWINHOME SINGLE FAMILY
46.04 ACRES SINGLE FAMILY RESIDENTIAL
1.44 ACRES CLUBHOUSE
30.8 ACRES PARKS/OPEN SPACE
26.47 ACRES ROAD RIGHT OF WAYS/OTHER
TOTAL PROJECT AREA = APPROX. 130.80 ACRES
TOTAL SINGLE FAMILY LOTS 425
TOTAL SF LOTS W/IN FLOODPLAIN 15
TOTAL TOWNHOMES 144
TOTAL MULTI-FAMILY CONDOMINIUMS 80
TOTAL COMMERCIAL BUILDING FOOTPRINT 40,836 SF
N
0 80 160 320 480
SCALE: 1"=160'
BEN LOMOND VIEWS
MASTER DEVELOPMENT PLAN
MARCH 18, 2021
Exhibit B-2


ROADWAY PLAN
ALL DEVELOPMENT PROPOSED IN THE PENDING FEMA 100-YEAR FLOODPLAIN AREA IS CONDITIONAL UPON FEMA REMAPPING
2000 NORTH
150 EAST
72' TOWN CENTER ROAD
60' RESIDENTIAL ROAD
52' PUBLIC RESIDENTIAL ROAD
20' PRIVATE ALLEY
PRIVATE DRIVE/PARKING
TOTAL PROJECT AREA = APPROX. 130.80 ACRES
TOTAL OPEN SPACE = APPROX. 30.8 ACRES (23.55%)
TOTAL SINGLE FAMILY LOTS 425
TOTAL SF LOTS W/IN FLOODPLAIN 15
TOTAL TOWNHOMES 144
TOTAL MULTI-FAMILY CONDOMINIUMS 80
TOTAL COMMERCIAL BUILDING FOOTPRINT 40,836 SF
N
0 80 160 320 480
SCALE: 1"=160'
Exhibit B-3
BEN LOMOND VIEWS
MASTER DEVELOPMENT PLAN
MARCH 18, 2021


OVERALL PARKING PLAN
2000 NORTH
150 EAST
DETENTION BASIN
MILLENNIUM PARK
CLUBHOUSE (5P TBD)
CLUB PARKING
PICKLE BALL (4)
TOWN CENTER PATIO LINKAGE TO MILLENNIUM PARK
PRIVATE ROAD PARKING SURROUNDING RETAIL USES
EXISTING RESTROOMS, PAVILION AND PLAYGROUND
NEW MILLENNIUM PARK PARKING. (50 FINAL DESIGN TO BE DETERMINED BY MILLENNIUM PARK AGREEMENT
ENTRY MONUMENTATION
LANDSCAPE BERM
EXISTING POND CONVERTED TO NEIGHBORHOOD PARK (0.98 AC.)
POTENTIAL TRAIL CONNECTOR TO DOWNTOWN FROM ADJACENT NEIGHBORHOOD
ALLEY LOADED TOWNHOMES
ACCELERATION LANE
DECELERATION/TURN LANE
WEBER BASIN WATER CONSERVANCY DISTRICT PARCEL
FUTURE POSSIBLE DETENTION BASIN
PARK
RETAIL/ OFFICE
TOTAL PROJECT AREA = APPROX. 130.80 ACRES
TOTAL OPEN SPACE = APPROX. 30.8 ACRES (23.55%)
TOTAL SINGLE FAMILY LOTS 425
TOTAL SF LOTS W/IN FLOODPLAIN 15
TOTAL TOWNHOMES 144
TOTAL MULTI-FAMILY CONDOMINIUMS 80
TOTAL COMMERCIAL BUILDING FOOTPRINT 40,836 SF
PARKING SUMMARY
1,760 SINGLE FAMILY
509 TOWNHOMES
204 MULTI FAMILY
248 PRIVATE COMMERCIAL STALLS
43 CLUBHOUSE STALLS
NOTE: ALL COUNTS INCLUDE FLOODPLAIN LOTS
N
0 80 160 320 480
SCALE: 1"=160'
Exhibit B-4
BEN LOMOND VIEWS
MASTER DEVELOPMENT PLAN
MARCH 18, 2021


PARKS, TRAILS AND OPEN SPACE PLAN
MILLENIUM PUBLIC PARK
PARK A
PARK B
PARK C
PARK D
PARK E
PARK F
PARK G
2500 NORTH
TOTAL PROJECT AREA = APPROX. 130.80 ACRES
TOTAL OPEN SPACE = APPROX. 30.8 ACRES (23.55%)
TOTAL SINGLE FAMILY LOTS 425
TOTAL SF LOTS W/IN FLOODPLAIN 15
TOTAL TOWNHOMES 144
TOTAL MULTI-FAMILY CONDOMINIUMS 80
TOTAL COMMERCIAL/ BUILDING FOOTPRINT 49,936 SF
PROPOSED PROJECT TRAIL
EXISTING CITY WALKING PATH
PROPOSED SIDEWALKS
12.13 AC PARK OPEN SPACE
18.66 AC COMMON OPEN SPACE
ALL PARK AND COMMON AREA OPEN SPACE WILL BE MAINTAINED BY THE PROJECT HOA
SCALE: 1"=160'
BEN LOMOND VIEWS
MASTER DEVELOPMENT PLAN
MARCH 18, 2021
Exhibit B-5

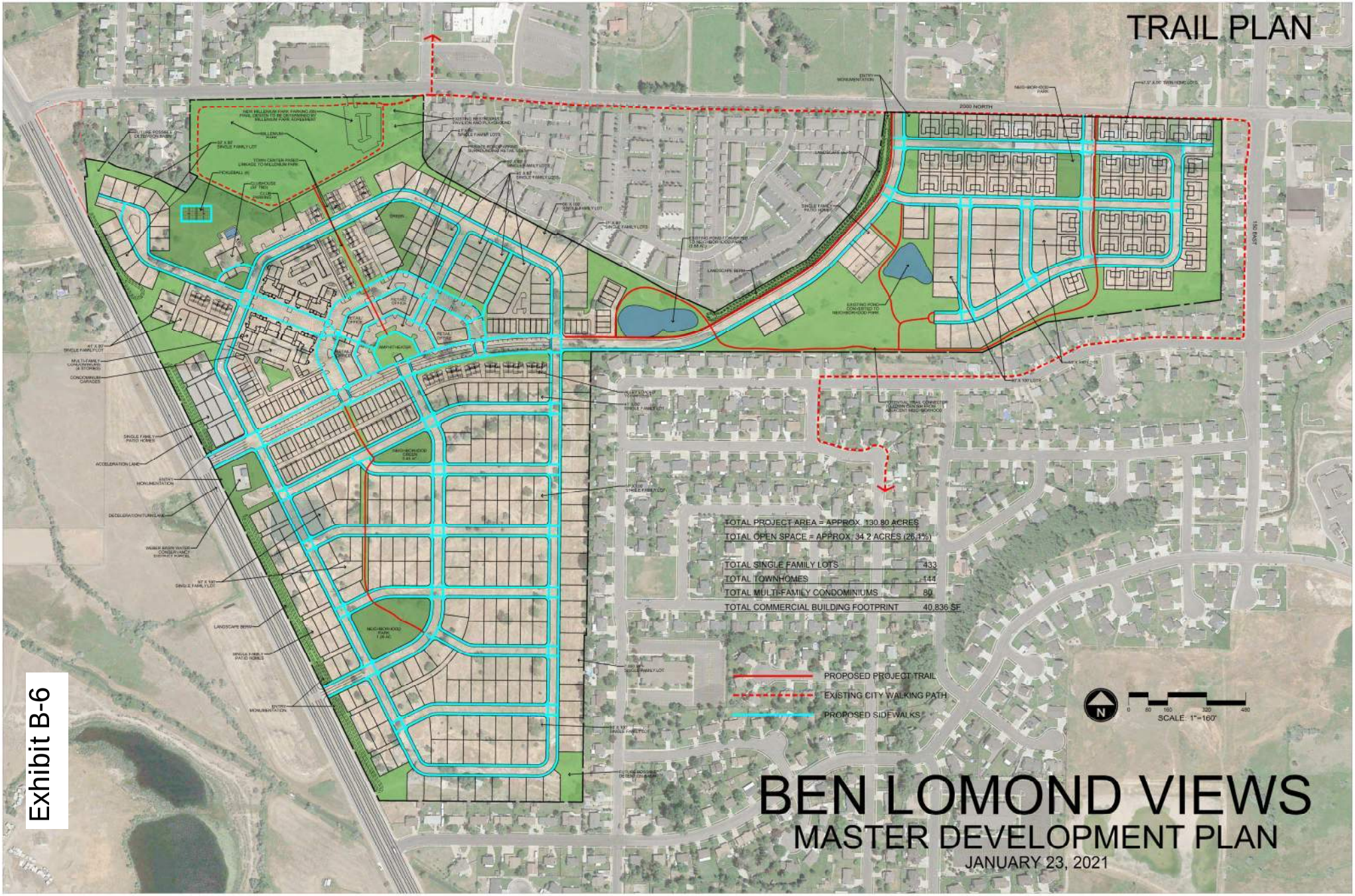

TRAIL PLAN
2500 NORTH
150 EAST
TOTAL PROJECT AREA = APPROX. 130.80 ACRES
TOTAL OPEN SPACE = APPROX. 34.2 ACRES (26.1%)
TOTAL SINGLE FAMILY LOTS 433
TOTAL TOWNHOMES 144
TOTAL MULTI-FAMILY CONDOMINIUMS 80
TOTAL COMMERCIAL BUILDING FOOTPRINT 40,836 SF
PROPOSED PROJECT TRAIL
EXISTING CITY WALKING PATH
PROPOSED SIDEWALKS
N
0 80 160 320 480
SCALE: 1"=160'
BEN LOMOND VIEWS
MASTER DEVELOPMENT PLAN
JANUARY 23, 2021
Exhibit B-6

Exhibit C

MU-LP – Ben Lomond Zone
Land Use Table

	Acres
Residential Singe-Family	64.2
Residential Multi-Family	3.7
Town Center Commercial	4.2
Parks and Open Spaces	23.6
Clubhouse	1.4
Road Right-of-Way	26.5
Millenium Public Park	7.2
Total	130.8

EXHIBIT D

MU-LP - Ben Lomond Zone
Intended Uses

Land Use	Master Plan Land Use Areas: Single Family Residential	Multi-Family Residential	Town Center Commercial	Parks, Trails, & Open Space	Home Owners Association Club House
Residential					
Single Family Dwelling, Detached	P	N	N	N	N
Attached Single Family Twin Home Dwelling	P	N	N	N	N
Single Family Town Homes/Rowhouses	P	N	N	N	N
Residential Accessory Building	P	N	N	N	N
Residential Accessory Swimming Pool	P	N	N	N	N
HOA Residential Parking Areas	P	N	N	N	N
Home Occupation	P/C	P/C	N	N	N
Multi-family Dwellings	N	P	N	N	N
Multi-family accessory garages and parking lots	N	P	N	N	N
Multi-family acessory maintenance sheds	N	P	N	N	N
Parks, Trails and Open Spaces					
HOA Maintained Parks	N	N	P	P	N
HOA Maintained Trails	N	N	P	P	P
HOA Maintained Open Spaces	N	N	P	P	P
Home Owners Association Club House					
Clubhouse	N	N	N	N	P
Accessory outdoor and recreation facilities - including dining, swimming pool, active recreation	N	N	N	N	P
Accessory parking lot	N	N	N	N	P
Town Center Area Uses					
Institutional Uses					
Public or private educational	N	N	P	N	N
Public office	N	N	P	N	N
Eleemosynary	N	N	P	N	N
Recreation. Fitness and Entertainment					
Commercial indoor recreation	N	N	P	N	N
Sexually oriented business	N	N	N	N	N
Health and fitness facility	N	N	P	N	N
Sales					
Retail sales or rental of commonly used goods for personal and household use	N	N	P	N	N
Retail sales of food and beverages made on-site or off-site	N	N	P	N	N
Restaurant with indoor or indoor plus outdoor dining	N	N	P	N	N
Restaurant with liquor with license					
Art Gallery					
Services					
Bank or credit union	N	N	P	N	N
Child care facility including day care and nursery school	N	N	P	N	N
Dance studio	N	N	P	N	N
Medical or dental office, clinic or lab	N	N	P	N	N
Personal services including care of hair, skin, and nails and sale of products related to the service provided	N	N	P	N	N
Business services such as a copy and printing shop, retail postal delivery service drop-off and pick-up, postal boxes.				N	
Art Studio	N	N	P	N	N

Land Use	Master Plan Land Use Areas				
	Single Family Residential	Multi-Family Residential	Town Center Commercial	Parks, Trails, & Open Space	Home Owners Association Club House
Offices					
Professional busines office such as accountant, attorney, architect, engineering services, insurance, photography, real estate, investment services, mail and copying services	N	N	P	N	N
General business offices including business primarily engaged in the provision of executive, management or administrative activity	N	N	P	N	N
Special Outdoor Events					
Temporary events such as farmers markets; music and theatrical performances; fairs including craft, art antique, book, food.	N	N	P	N	N

Exhibit E
Transportation and Roadway Standards

Exhibit E-1
Ben Lomond Views
Transportation Plan

The Ben Lomond Views Transportation Plan addresses:

- Access to the development from US-89 and 2000 North.
- Traffic movement within the development.
- Off-street parking for residential and Town Center commercial areas.
- Pedestrian travel by sidewalk and trails
- Bicycle access and travel within the development

The following exhibits are part of this Transportation Plan:

1. Exhibit E-2, Traffic Impact Study by Fehr & Peers of Salt Lake City
2. Exhibit E-3, Harrisville General Plan, Future Transportation Map
3. Exhibit E-4, Roadway Plan
4. Exhibit E-5, Road Sections
5. Exhibit E-6, Parking Plan
6. Exhibit E-7, Trails Plan
7. Exhibit E-8, City Trails Map
8. Exhibit E-9, Bike Plan

Access

The Traffic Impact Study (Exhibit E-2) makes the following recommendations that are incorporated into the Transportation Plan and Master Development Plan:

- Two intersections with US-89; one at the Town Center Road and one to the south.
- An intersection with 2000 North, a second intersection has been added.
- Installation of a traffic signal at the intersection of US-89 and the Town Center Road. A future traffic signal at this location is identified on the Harrisville General Plan, Future Transportation Map (Exhibit E-3). The timing of installation of the signal will be determined by the Utah Department of Transportation.
- Inclusion of an additional left turn lane on the Town Center Road at the intersection with US-89 to expedite traffic flow and reduce potential back-up of left turning vehicles at peak times.
- Use of existing road shoulder width to develop acceleration and deceleration lanes at the access locations on US-89.
- Insure that UDOT intersection sight distance length standards for traffic exiting onto US-89 are met.

Roadway Plan

The Ben Lomond Views Roadway Plan (Exhibit E-4) balances the need for efficient traffic movement with design compatible with a town-like residential neighborhood. As shown on Exhibit 3, the Plan contains a 72' ROW Town Center road extending from the north intersection with US-89 to the eastern end of the Town Center/commercial area and two 60' ROW residential roads to accommodate traffic moving through the development. All other public residential roads are 52' ROW. Patio homes, rear-loaded townhomes and rear-loaded detached homes are served by private 20' wide alleys. In order to avoid the use of large parking lots, parking for the Town Center area is planned for private roads that also function as parking lots. All private alleys and roads will be maintained by an HOA. Road Cross Sections are shown in Exhibit E-5.

Private Parking Plan

The Plan for parking in private areas including garages, driveways, parking areas and private roads is shown in Exhibit E-6. The total number of parking spaces for each major use category are noted on the Plan. As illustrated by the road cross sections, there is considerable capacity for parking on public streets but decisions about parking on public roads will be made by Harrisville City officials. No parking on public streets is shown or included in parking space totals.

All single family detached homes have 2-car garages and driveway parking for 2 additional vehicles yielding 4.0 off-street parking spaces for each home. All townhomes have 2-car garages and 56% have driveway parking for 2 vehicles as well. With the addition of several townhome private parking areas there are 3.5 parking spaces per townhome. The condominiums have 2.6 spaces per apartment unit.

The Town Center area has 1 private parking space for each of 140 estimated rentable square feet of commercial space. In addition, there is considerable capacity for on-street parking on the Town Center Road. 43 off-street parking spaces are available at the Club House.

Trails Plan

The system of trails and sidewalks shown in Exhibit E-7 provides pedestrian pathways to all areas of Ben Lomond Views and for visitors and shoppers at the Town Center. Onsite trails connect to the City trail system at Millenium Park and at 2000 North. A plan of the City Trail systems is shown in Exhibit E-8.

Bicycle Access Plan

Pathways for bike riders are shown in Exhibit E-9. These include paths to avoid bike riding on the Town Center Road.

Signage

The Plan will incorporate signage to be determined at a later date in consultation with Harrisville City officials.

Exhibit E-2

Harrisville Ben Lomond Views

Traffic Impact Study

Prepared for:
Douglas E. Palermo, Investment Singular

August 2020

UT20-2226

FEHR PEERS

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www.fehrandpeers.com

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Executive Summary

This study provides a summary of the potential transportation-related impacts from the proposed multi-use development located on the southeast corner of US-89 and 2000 North in Harrisville, Utah. This study analyzes the traffic operations and impacts for 2020 background conditions, 2020 plus project conditions, 2025 background, 2025 plus project, 2040 cumulative and 2040 plus project conditions at the following key intersections:

1. 750 West / US-89 (signal)
2. US-89 / 2000 North (stop-controlled)
3. US-89 / W. Harrisville Road (signal)
4. 200 West / 2000 North (stop-controlled)

In addition to these intersections, the following accesses are analyzed:

1. North Access on US-89
2. South Access on US-89
3. West Access (200 West) on 2000 North
4. East Access on 2000 North

Existing 2020 Background Conditions

All study intersections operate within acceptable Level of Service (LOS) during both AM and PM peak hours. The westbound left-turn movement at the US-89 / 2000 North intersection operates at LOS D and is approaching LOS E.

Existing 2020 Plus Project Conditions

All study intersections operate within acceptable LOS with the exception of the following locations:

- US-89 / 2000 North – LOS E in the PM peak hour.
    - This is caused by the stop-controlled westbound vehicles attempting to turn left onto US-89. The high volumes of through traffic northbound and southbound on US-89 make it difficult for vehicles to turn off of 2000 North, causing high levels of delay.
- US-89 / North Access – LOS F in the PM peak hour.
    - This is caused by the stop-controlled westbound project-generated trips attempting to turn left onto US-89. The high volumes of through traffic on US-89 make it difficult for vehicles to turn out of the project access, causing high levels of delay without mitigation.

Fehr & Peers recommends the following mitigation measures for existing plus project conditions:

- US-89 / North Access
    - Install a signal when warrants are met. Peak hour volumes at this intersection warrant a signal (signal warrant evaluation attached in Appendix), but it is recommended that the Utah Department of Transportation (UDOT) undertake regular monitoring of actual traffic conditions and crash data and conduct a timely re-evaluation of the full set of warrants.
    - With a signal at this location, the westbound left-turn movement is expected to experience a 95th percentile queue length of 178 feet and 143 feet in the AM peak hour and PM peak hour, respectively.
        - The proposed site plan shows an internal intersection approximately 150 feet from the north access. The 95th percentile queue shows that queues are expected to spill back into the internal intersection, possibly causing added delay for the minor approaches. Signage and striping is recommended to keep the internal intersection clear to allow movements to happen in congested conditions. This however may extend the queue further east where the on-street parking begins.
        - Alternatively, while the traffic doesn't warrant a second westbound left-turn lane out of the north access, by adding a second left-turn lane it reduces the 95th percentile queue length to 93 feet and 74 feet in the AM peak hour and PM peak hour, respectively and would keep the queue from spilling back past the internal intersection.

No mitigation measures are recommended at the US-89 / 2000 North intersection. It is however recommended that the City look into re-aligning 750 West to align with 2000 North, moving the existing signal at 750 West to 2000 North, as 2000 North provides better regional connectivity in the study area.

Future 2025 Background Conditions

Fehr & Peers projected 2025 volumes using linear annual growth rates based on the Wasatch Front Regional Council (WFRC) Travel Demand Model. The following annual growth rates extracted from the model were used for this analysis:

- 1.0% on US-89
- 0.8% on 2000 North
- 0.7% on West Harrisville Road

A minimum annual growth rate of 0.5% was also assumed for the minor roadways (750 West and 200 West) in the study area.

All study intersections operate within acceptable LOS during both AM and PM peak hours. The westbound left-turn movement at the US-89 / 2000 North intersection operates at LOS D and is approaching LOS E.

Future 2025 Plus Project Conditions

All study intersections operate within acceptable LOS with the exception of the following locations:

- US-89 / 2000 North – LOS F in the PM peak hour.
    - This is caused by the stop-controlled westbound vehicles attempting to turn left onto US-89. The high volumes of through traffic on US-89 make it difficult for vehicles to turn off of 2000 North, causing high levels of delay.
- US-89 / North Access – LOS F in the PM peak hour.
    - This is caused by the stop-controlled westbound project-generated trips attempting to turn left onto US-89. The high volumes of through traffic on US-89 make it difficult for vehicles to turn out of the project access, causing high levels of delay without mitigation.

Fehr & Peers recommends the same mitigations as the Existing 2020 Plus Project conditions. No further mitigation measures are recommended.

Future 2040 Cumulative Conditions

Fehr & Peers projected 2040 volumes using linear annual growth rates based on the WFRC Travel Demand Model. The following annual growth rates extracted from the model were used for this analysis:

- 1.0% on US-89
- 0.8% on 2000 North
- 0.7% on West Harrisville Road

A minimum annual growth rate of 0.5% was also assumed for the minor roadways (750 West and 200 West) in the study area. In addition to the background growth, the trips from the assumed growth caused by future development on the west side of US-89 across the street from Ben Lomond Views were distributed to the study intersections.

All study intersections operate within acceptable LOS with the exception of the following locations:

- US-89 / 2000 North – LOS E in the PM peak hour.
    - This is caused by the stop-controlled westbound vehicles attempting to turn left onto US-89. The high volumes of through traffic on US-89 make it difficult for vehicles to turn out of 2000 North, causing high levels of delay.

Future 2040 Plus Project Conditions

All study intersections operate within acceptable LOS with the exception of the following locations:

- US-89 / 2000 North – LOS F in the PM peak hour.
    - This is caused by the stop-controlled westbound vehicles attempting to turn left onto US-89. The high volumes of through traffic on US-89 make it difficult for vehicles to turn out of 2000 North, causing high levels of delay.
- US-89 / North Access – LOS F in the PM peak hour.
    - This is caused by the stop-controlled westbound project-generated trips attempting to turn left onto US-89. The high volumes of through traffic on US-89 make it difficult for vehicles to turn out of the project access, causing high levels of delay.
- US-89 / South Access – LOS E in the PM peak hour.
    - This is caused by the stop-controlled westbound project-generated trips attempting to turn left onto US-89. The high volumes of through traffic on US-89 make it difficult for vehicles to turn out of the project access, causing high levels of delay.

Fehr & Peers recommends the same mitigation measures as the Existing 2020 Plus Project conditions. Additional recommended mitigations include:

- US-89 / South Access
    - Restrict left-turns out of the south project access on US-89. Left-turns into the project access could still be allowed.

Auxiliary Lane and Sight Distance

Based on UDOT standards and American Association of State Highway and Transportation Officials (AASHTO) standards, Fehr & Peers recommends the following auxiliary turning lanes at the proposed project accesses on US-89:

- Utilize the existing two-way left-turn (TWLT) lane for an exclusive southbound left-turn lane: storage length of 100 ft, taper length of 245 ft.
- Utilize the existing shoulder width to develop an exclusive northbound right-turn lane: storage length of 100 ft, deceleration length of 385 ft.
- Utilize the existing shoulder width to develop an acceleration lane for right-turn out: 1,145 ft total (including a 660 ft taper). With a recommended signal at the north access, the acceleration lane is not required for traffic operation purposes. It is recommended that UDOT consider if the acceleration lane would be beneficial for safety purposes.

AASHTO recommends 530 feet of intersection sight distance length for right-turns to safely make the maneuver out of the proposed development. The current median on US-89 should be

sufficient for vehicles to make a 2-stage left-turn, and the recommended sight distance for the right-turn maneuver should be adequate to provide safe left-turn maneuvers out of the project accesses. Furthermore, the recommended sight distance for right-turn maneuvers still applies for vehicles attempting to make right turns on a red signal, if the north access is signalized.

Safety

From 2017-2019 there were 46 crashes along US-89 in the project study area. 28 of these crashes did not cause injury, 17 crashes included an injury, and one crash was fatal. This fatal crash was in 2018 at the intersection of US-89 and 2000 North. A motorcycle was travelling northbound on US-89 when a passenger vehicle turning left from 2000 North onto US-89 collided with the motorcyclist, leading to his/her death. This crash occurred in clear daylight conditions.

LOS Summary

Table 1 shows the analysis results for all scenarios.

Table 1. AM and PM Peak Hour Level of Service Summary

Intersection			2020 Background	2020 + Project[2]	2025 Background	2025 + Project[2]	2040 Cumulative	2040 + Project[2]
ID	Location	Period	LOS & Sec/Veh[1]	LOS & Sec/Veh[1]	LOS & Sec/Veh[1]	LOS & Sec/Veh[1]	LOS & Sec/Veh[1]	LOS & Sec/Veh[1]
1	750 West / US-89	AM	A / 7	A / 5	A / 8	A / 5	A / 8	A / 5
		PM	A / 9	A / 7	A / 9	A / 7	B / 10	B / 17
2	US-89 / 2000 North	AM	B / 13 (WB LT)	C / 16 (WB LT)	B / 13 (WB LT)	C / 16 (WB LT)	B / 15 (WB LT)	C / 18 (WBL)
		PM	D / 26 (WB LT)	**E / 44 (WB LT)**	D / 30 (WB LT)	**F / 53 (WB LT)**	**E / 41 (WB LT)**	**F / 75 (WB LT)**
3	US-89 / W. Harrisville Road	AM	A / 9	B / 12	B / 10	B / 12	B / 10	B / 13
		PM	B / 15	C / 24	B / 16	C / 25	B / 19	C / 30
4	200 West - West Access / 2000 North	AM	A / 9 (SB LT)	B / 10 (SB LT)	A / 9 (SB LT)	B / 10 (SB LT)	A / 9 (SB LT)	A / 10 (SB LT)
		PM	B / 10 (SB LT)	B / 12 (SB LT)	B / 11 (SB LT)	B / 12 (SB LT)	B / 11 (SB LT)	B / 13 (SB LT)
5	US-89 / North Access	AM	-	B / 12	-	B / 11	-	B / 12
		PM	-	A / 8	-	A / 8	-	B / 18
6	US-89 / South Access	AM	-	B / 14 (WB LT)	-	B / 14 (WB LT)	-	B / 10 (WB RT)
		PM	-	D / 26 (WB LT)	-	D / 28 (WB LT)	-	C / 15 (WB RT)
7	2000 North / East Access	AM	-	A / 9 (NB LT)	-	A / 9 (NB LT)	-	A / 9 (NB LT)
		PM	-	B / 10 (NB LT)	-	B / 10 (NB LT)	-	B / 10 (NB LT)

1. Intersection average LOS and delay for signalized intersections, worst movement LOS and delay for unsignalized intersections.
2. Results show mitigated conditions.

Source: Fehr & Peers.

Introduction

Purpose

This study provides a summary of the potential transportation-related impacts from the proposed multi-purpose development located on the southeast corner of US-89 and 2000 North in Harrisville, Utah. See **Figure 1** for a project location map.

This study analyzes the traffic operations and impacts for 2020 background, 2020 plus project, 2025 background, 2025 plus project, 2040 cumulative, and 2040 plus project conditions at key intersections described in the Scope section. The plus project analysis includes project trips generated from the proposed project. For each evaluation period, mitigation (roadway geometry changes or operational improvements) actions, if needed, were recommended.

Scope

This study analyzes the traffic impacts of intersections near the proposed project site. Impacts are specifically addressed at the following study intersections:

1. 750 West / US-89 (signal)
2. US-89 / 2000 North (stop-controlled)
3. US-89 / W. Harrisville Road (signal)
4. 200 West / 2000 North (stop-controlled)

In addition to these intersections, the following accesses are analyzed:

1. North Access on US-89
2. South Access on US-89
3. West Access (200 West) / 2000 North
4. East Access on 2000 North



Figure 1

Project Location

Analysis Methodology

Level of Service (LOS) is a term that describes the operating performance of an intersection or roadway. LOS is measured quantitatively and reported on a scale from A to F, with A representing the best performance and F the worst. Typically, LOS D or better is considered acceptable for urban areas, and LOS C or better is considered acceptable for rural areas. **Table 2** provides a brief description of each LOS letter designation and an accompanying average delay per vehicle for both signalized and unsignalized intersections. The Highway Capacity Manual 6th Edition (HCM 6) methodology was used in this study to remain consistent with "state of the practice" professional standards. This methodology has different quantitative evaluations for signalized and unsignalized intersections. For signalized intersections, the LOS is provided for the overall intersection (weighted average of all approach delays). Software used for this analysis was Synchro for all intersections.

Table 2: Level of Service Descriptions

LOS	Description	Signalized Intersections	Unsignalized Intersections
		Avg. Delay (sec/veh)[1]	Avg. Delay (sec/veh)[2]
A	*Free Flow / Insignificant Delay* Extremely favorable progression. Individual users are virtually unaffected by others in the traffic stream.	< 10.0	< 10.0
B	*Stable Operations / Minimum Delays* Good progression. The presence of other users in the traffic stream becomes noticeable.	> 10.0 to 20.0	> 10.0 to 15.0
C	*Stable Operations / Acceptable Delays* Fair progression. The operation of individual users is affected by interactions with others in the traffic stream	> 20.0 to 35.0	> 15.0 to 25.0
D	*Approaching Unstable Flows / Tolerable Delays* Marginal progression. Operating conditions are noticeably more constrained.	> 35.0 to 55.0	> 25.0 to 35.0
E	*Unstable Operations / Significant Delays Can Occur* Poor progression. Operating conditions are at or near capacity.	> 55.0 to 80.0	> 35.0 to 50.0
F	*Forced, Unpredictable Flows / Excessive Delays* Unacceptable progression with forced or breakdown of operating conditions.	> 80.0	> 50.0

1. Overall intersection LOS and average delay (seconds/vehicle) for all approaches.
2. Worst movement LOS and delay (seconds/vehicle) only.

Source: Fehr & Peers descriptions, based on *Highway Capacity Manual 6th Edition*.

Existing 2020 Background Conditions

Purpose

The 2020 existing conditions analysis examines the pertinent intersections and roadways during the peak travel periods of the day under existing traffic and geometric conditions. Through this analysis, existing traffic operational deficiencies can be identified, and potential mitigation measures recommended.

Traffic Volumes

Fehr & Peers collected traffic counts at the study intersections to establish a baseline of existing conditions and operations for the area. Traffic counts for the weekday peak period were recorded from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM on Wednesday, July 22, 2020 at all study intersections. No monthly or daily adjustment factors were applied to the counts. The existing background weekday peak hour volumes are shown in **Figure 2**.

Access Category

UDOT assigns an access category to each state highway. These categories provide the minimum allowable spacing of signals, streets, and driveways. US-89 is a state highway with Access Category 3 (System Priority-Urban importance) with the following spacing allowance:

- Signal spacing: 2,640 feet
- Intersection spacing: 1,320 feet

Level of Service Analysis

The HCM 6 delay thresholds provided in the introduction were used to compute the LOS at each study intersection for the existing background weekday AM and weekday PM peak hour LOS. The results of this analysis are reported in **Table 3** (see Appendix for the detailed LOS report). These results serve as a base for the analysis of the impacts of the proposed development.

Table 3: Existing 2020 Background Conditions Level of Service

Intersection				Worst Movement[1]			Overall Intersection[2]	
ID	Location	Period	Control	Movement[3]	Delay (Sec/Veh)	LOS	Avg. Delay (Sec/Veh)	LOS
1	750 West / US-89	AM	Signal	-	-	-	7	A
		PM		-	-	-	9	A
2	US-89 / 2000 North	AM	WB Stop	WB LT	13	B	-	-
		PM		WB LT	26	D	-	-
3	US-89 / W. Harrisville Road	AM	Signal	-	-	-	9	A
		PM		-	-	-	15	B
4	200 West / 2000 North	AM	SB Stop	SB LT	9	A	-	-
		PM		SB LT	10	B	-	-

1. This represents the worst movement LOS and delay (seconds/vehicle) and is only reported for unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds/vehicle) and is only reported for signalized intersections.
3. NB=Northbound, SB=Southbound, EB=Eastbound, WB=Westbound, LT=Left-turn, RT=Right-turn, and TH=Through

Source: Fehr & Peers.

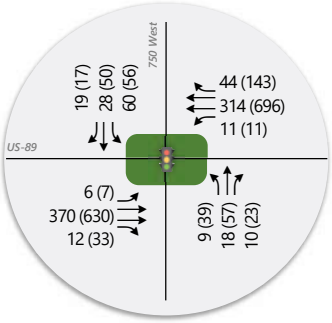
As shown in **Table 3**, all study intersections operate within acceptable LOS (LOS D or better) during both AM and PM peak hours. Note that the westbound left-turn movement at the US-89 / 2000 North intersection operates at LOS D and is approaching LOS E (threshold is 35 seconds/vehicle), which is usually considered unacceptable. This is caused by stop-controlled vehicles attempting to turn left onto US-89. The high volumes of through traffic on US-89 make it difficult for vehicles to turn out of 2000 North, causing high levels of delay.

Mitigation Measures

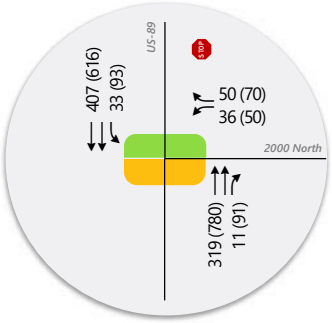
No mitigation measures are recommended for existing 2020 background conditions.



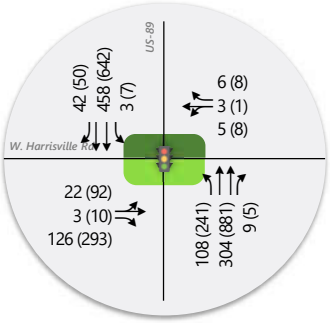
1. 750 West/US-89



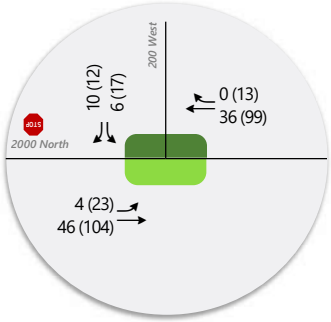
2. US-89/2000 North



3. US-89/W. Harrisville Rd



4. 200 West/2000 North



LEGEND

Stop Sign — Signalized

Lane Configuration — AM (PM) / AM (PM) / AM (PM) — Peak Hour Traffic Volume per lane

Intersection Level of Service (LOS):

AM / PM — A B C D E F

Figure 2

Existing Conditions

Project Conditions

Purpose

The project conditions analysis explains the type and intensity of the proposed development. This provides the basis for trip generation, distribution, and assignment of project trips to the surrounding study intersections defined in the introduction.

Project Description

The proposed Ben Lomond Views development will be located on the site of the former Ben Lomond Golf Course, southeast of the US-89 / 2000 North intersection in Harrisville, Utah. The proposed development is roughly 130 acres in size. The site plan (attached in Appendix) proposes four driveway access locations: two on US-89 and two on 2000 North.

Trip Generation

Trip generation for the project was computed using trip generation rates published in the Institute of Transportation Engineers (ITE) Trip Generation, 10th Edition, 2017, and Fehr & Peers' mixed-use development (MXD+) methodology. The MXD+ methodology captures the traffic benefits of developments by looking at interactions among the mixture of land uses and patron usage of alternative modes (i.e. transit, bicycling, and/or walking). The below land use assumptions were used to calculate the number of trips:

- Multifamily Housing – 118 Dwelling Units (80 condominium apartments, 38 rental apartments)
- Single-Family Housing – 669 Dwelling Units
- General Retail – 32,500 ft^2
- Project Community Space (Fitness Center) – 6,500 ft^2
- Office Space – 15,000 ft^2

The gross and net external vehicle trips expected to be generated by the mixed-use development, along with the vehicle trip reduction rates (that account for trips that are internal to the site, as well as trips that shift to transit or walk/bike modes) are shown below in **Table 4.** Daily reductions included 5.1% to internal capture, 1.7% shift to transit, and 0.9% shift to walk/bike for a total of 7.7% reduction. AM peak hour reductions included 7.1% to internal capture, 1.3% shift to transit, and 1.0% shift to walk/bike for a total of 9.4% reduction. PM peak hour reductions included 8.1% to internal capture, 1.4% shift to transit, and 0.8% shift to walk/bike for a total of 10.3% reduction.

Table 4: Trip Generation

Time Period	Project Gross Trips	Net External Vehicle Trips	Total Vehicle Trip Reduction
Daily	9,794	9,046	7.7%
AM Peak Hour	763	691	9.4%
PM Peak Hour	988	886	10.3%

Source: Fehr & Peers.

Trip Distribution and Assignment

Project traffic was assigned to the roadway network based on the proximity to major streets and freeways, roadway network, high population densities, and regional trip attractions. Existing travel patterns observed during data collection also provided helpful guidance to establish these distribution percentages, especially in close proximity to the site.

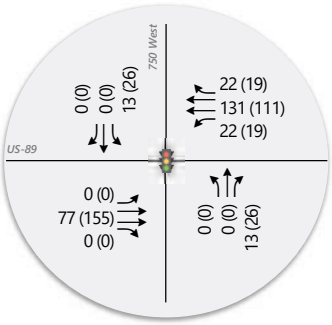
Overall, the project-generated trips were distributed to and from these directions in the project conditions analyses, in the corresponding percentages:

- 5% North (using 750 West)
- 5% South (using 750 West)
- 30% North (using US-89)
- 5% East (using 2000 North)
- 15% West (using West Harrisville Road)
- 40% South (using US-89)

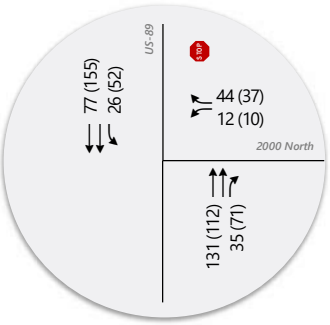
The project-generated trips are shown in **Figure 3**.



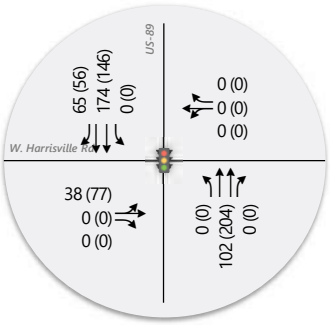
1. 750 West/US-89



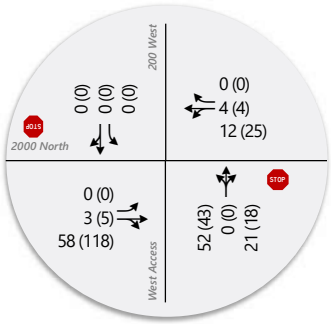
2. US-89/2000 North



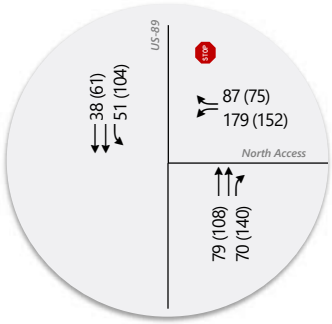
3. US-89/W. Harrisville Rd



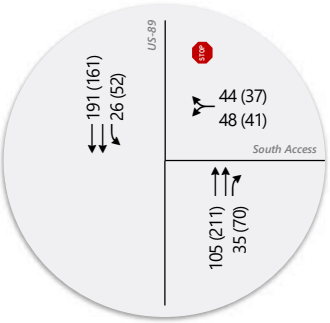
4. 200 West/2000 North



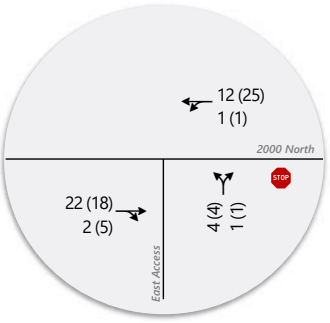
5. US-89/North Access



6. US-89/South Access



7. 2000 N./East Access



LEGEND

Stop Sign — Signalized

Lane Configuration — AM (PM) / AM (PM) / AM (PM) — Peak Hour Traffic Volume per lane

Intersection Level of Service (LOS):

AM / PM — A B C D E F

Figure 3

Project Trips

Existing 2020 Plus Project Conditions

Purpose

The purpose of the existing 2020 plus project conditions analysis is to evaluate the impact of the proposed development traffic on the surrounding roadway network. To analyze this impact, the peak hour background traffic volumes were combined with volumes generated by the proposed project at its peak hour. Analysis results were compared to the results of the background traffic volumes to show the impact of the proposed project.

Traffic Volumes

Project-generated traffic (**Figure 3)** was added to the background 2020 volumes (**Figure 2**) to yield "existing 2020 plus project" weekday AM and PM peak hour volumes as shown in Error! R eference source not found.**4**.

Level of Service Analysis

The HCM 6 delay thresholds provided in the introduction were used to compute the LOS at each study intersection for existing plus project for each peak hour. The results of this analysis for the weekday AM and PM peak hours are reported in **Table 5** (see Appendix for the detailed LOS report).

As shown in **Table 5**, all study intersections operate within acceptable LOS with the exception of the following locations:

- US-89 / 2000 North – LOS E in the PM peak hour.
    - This is caused by the stop-controlled westbound vehicles attempting to turn left onto US-89. The high volumes of through traffic on US-89 make it difficult for vehicles to turn out of 2000 North, causing high levels of delay.
- US-89 / North Access – LOS F in the PM peak hour.
    - This is caused by the stop-controlled westbound project-generated trips attempting to turn left onto US-89. The high volumes of through traffic on US-89 make it difficult for vehicles to turn out of the project access, causing high levels of delay without mitigation.

Table 5. Existing 2020 plus Project Conditions Level of Service

Intersection				Worst Movement[1]			Overall Intersection[2]	
ID	Location	Period	Control	Movement[3]	Delay (Sec/Veh)	LOS	Avg. Delay (Sec/Veh)	LOS
1	750 West / US-89	AM	Signal	-	-	-	8	A
		PM		-	-	-	10	B
2	US-89 / 2000 North	AM	WB Stop	WB LT	16	C	-	-
		PM		**WB LT**	**44**	**E**	-	-
3	US-89 / W. Harrisville Road	AM	Signal	-	-	-	12	B
		PM		-	-	-	24	C
4	200 West - West Access / 2000 North	AM	NB/SB Stop	SB LT	10	B	-	-
		PM		SB LT	12	B	-	-
5	US-89 / North Access	AM	WB Stop	WB LT	21	C	-	-
		PM		**WB LT**	**93**	**F**	-	-
6	US-89 / South Access	AM	WB Stop	WB LT	14	B	-	-
		PM		WB LT	26	D	-	-
7	2000 North / East Access	AM	NB/SB Stop	NB LT	9	A	-	-
		PM		NB LT	10	B	-	-

1. This represents the worst movement LOS and delay (seconds/vehicle) and is only reported for unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds/vehicle) and is only reported for signalized intersections and roundabouts.
3. NB=Northbound, SB=Southbound, EB=Eastbound, WB=Westbound, LT=Left-turn, RT=Right-turn, and TH=Through

Source: Fehr & Peers.

Mitigation Measures

Fehr & Peers recommends the following mitigation measures for existing plus project conditions:

- US-89 / North Access
    - Install a signal when warrants are met. Peak hour volumes at this intersection warrant a signal (signal warrant evaluation attached in Appendix), but it is recommended that UDOT undertake regular monitoring of actual traffic conditions and crash data and conduct a timely re-evaluation of the full set of warrants.
    - With a signal at this location, the westbound left-turn movement is expected to experience a 95th percentile queue length of 178 feet and 143 feet in the AM peak hour and PM peak hour, respectively.
        - The proposed site plan shows an internal intersection approximately 150 feet from the north access. The 95th percentile queue shows that queues

are expected to spill back into the internal intersection, possibly causing added delay for the minor approaches. Signage and striping is recommended to keep the internal intersection clear to allow movements to happen in congested conditions. This however may extend the queue further east where the on-street parking begins.

- Alternatively, while the traffic don't warrant a second westbound left-turn lane out of the north access, by adding a second left-turn lane it reduces the 95th percentile queue length to 93 feet and 74 feet in the AM peak hour and PM peak hour, respectively and would keep the queue from spilling back past the internal intersection.

No mitigation measures are recommended at the US-89 / 2000 North intersection. It is however recommended that the City look into re-aligning 750 West to align with 2000 North, moving the existing signal at 750 West to 2000 North, as 2000 North provides better regional connectivity in the study area. The results of the mitigated conditions for existing plus project conditions are shown in **Table 6**. The mitigated LOS results are reflected in **Figure 4**.

Table 6. Existing 2020 plus Project Mitigated Conditions Level of Service

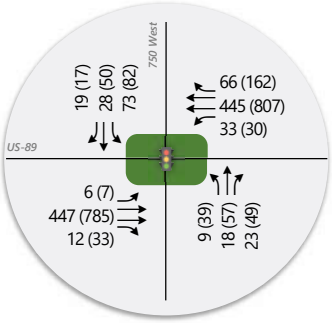
Intersection				Worst Movement[1]			Overall Intersection[2]	
ID	Location	Period	Control	Movement[3]	Delay (Sec/Veh)	LOS	Avg. Delay (Sec/Veh)	LOS
1	750 West / US-89	AM	Signal	-	-	-	5	A
		PM		-	-	-	7	A
2	US-89 / 2000 North	AM	WB Stop	WB LT	16	C	-	-
		PM		**WB LT**	**44**	**E**	-	-
3	US-89 / W. Harrisville Road	AM	Signal	-	-	-	12	B
		PM		-	-	-	24	C
4	200 West - West Access / 2000 North	AM	NB/SB Stop	SB LT	10	B	-	-
		PM		SB LT	12	B	-	-
5	US-89 / North Access	AM	Signal	-	-	-	12	B
		PM		**-**	**-**	**-**	8	A
6	US-89 / South Access	AM	WB Stop	WB LT	14	B	-	-
		PM		WB LT	26	D	-	-
7	2000 North / East Access	AM	NB/SB Stop	NB LT	9	A	-	-
		PM		NB LT	10	B	-	-

1. This represents the worst movement LOS and delay (seconds/vehicle) and is only reported for unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds/vehicle) and is only reported for signalized intersections and roundabouts.
3. NB=Northbound, SB=Southbound, EB=Eastbound, WB=Westbound, LT=Left-turn, RT=Right-turn, and TH=Through

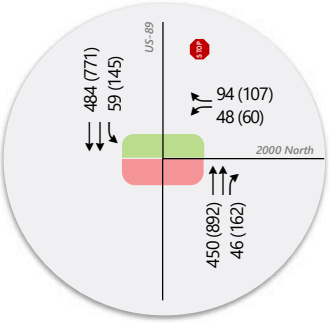
Source: Fehr & Peers.



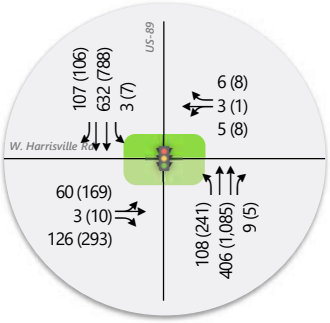
1. 750 West/US-89



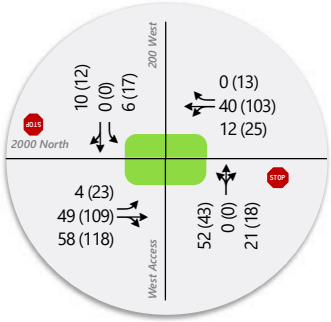
2. US-89/2000 North



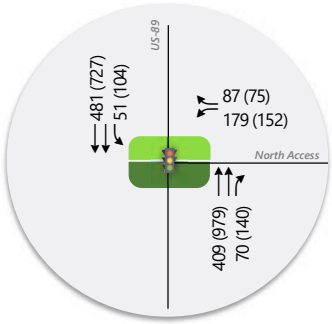
3. US-89/W. Harrisville Rd



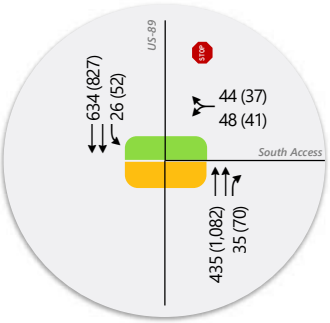
4. 200 West/2000 North



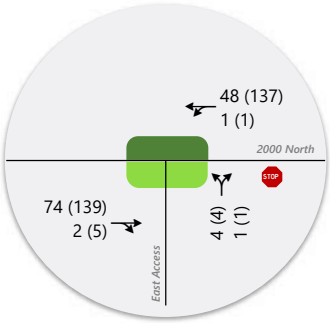
5. US-89/North Access



6. US-89/South Access



7. 2000 N./East Access



LEGEND

STOP *Stop Sign* *Signalized*

Lane Configuration AM (PM) / AM (PM) / AM (PM) *Peak Hour Traffic Volume per lane*

Intersection Level of Service (LOS):

AM / PM — A B C D E F

Figure 4

Existing + Project Conditions

Future 2025 Background Conditions

Purpose

The purpose of the future 2025 background conditions analysis is to evaluate the study intersections during the peak travel periods of the day under projected 2025 traffic volumes. This analysis provides a baseline condition for the year 2025, which can be used to determine future project impacts.

Traffic Volumes

Fehr & Peers projected 2025 volumes using linear annual growth rates based on the WFRC Travel Demand Model. The following annual growth rates extracted from the model were used for this analysis:

- 1.0% on US-89
- 0.8% on 2000 North
- 0.7% on West Harrisville Road

A minimum annual growth rate of 0.5% was also assumed for the minor roadways (750 West and 200 West) in the study area. The projected 2025 background weekday AM and PM peak hour traffic volumes are shown in **Figure 5**.

Level of Service Analysis

The HCM 6 delay thresholds provided in the introduction were used to compute the LOS at each study intersection for each peak hour LOS. The results of this analysis for the weekday AM and PM peak hours are reported in **Table 7** (see Appendix for the detailed LOS report).

Table 7. Future 2025 Background Conditions Peak Hour Level of Service

Intersection				Worst Movement[1]			Overall Intersection[2]	
ID	Location	Period	Control	Movement[3]	Delay (Sec/Veh)	LOS	Avg. Delay (Sec/Veh)	LOS
1	750 West / US-89	AM	Signal	-	-	-	8	A
		PM		-	-	-	9	A
2	US-89 / 2000 North	AM	WB Stop	WB LT	13	B	-	-
		PM		WB LT	30	D	-	-
3	US-89 / W. Harrisville Road	AM	Signal	-	-	-	10	B
		PM		-	-	-	16	B
4	200 West / 2000 North	AM	SB Stop	SB LT	9	A	-	-
		PM		SB LT	11	B	-	-

1. This represents the worst movement LOS and delay (seconds/vehicle) and is only reported for unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds/vehicle) and is only reported for signalized intersections and roundabouts.
3. NB=Northbound, SB=Southbound, EB=Eastbound, WB=Westbound, LT=Left-turn, RT=Right-turn, and TH=Through

Source: Fehr & Peers.

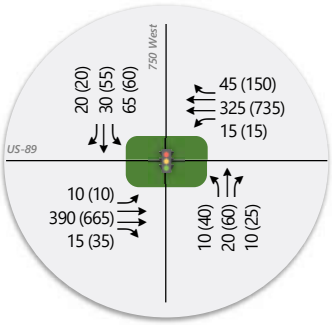
As shown in **Table 7**, all study intersections operate within acceptable LOS (LOS D or better) during both AM and PM peak hours. Note that the westbound left-turn movement at the US-89 / 2000 North intersection operates at LOS D and is approaching LOS E (threshold is 35 seconds/vehicle), which is usually considered unacceptable. This is caused by stop-controlled vehicles attempting to turn left onto US-89. The high volumes of through traffic on US-89 make it difficult for vehicles to turn out of 2000 North, causing high levels of delay.

Mitigation Measures

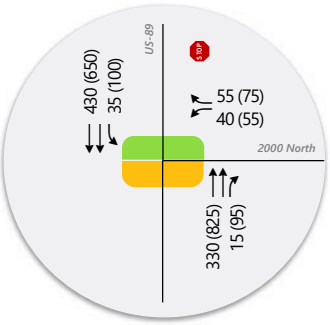
No mitigation measures are recommended for 2025 background conditions.



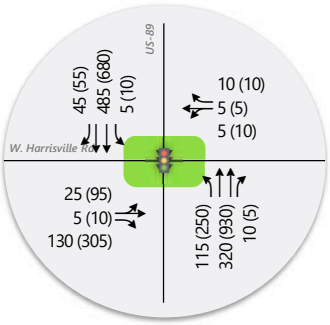
1. 750 West/US-89



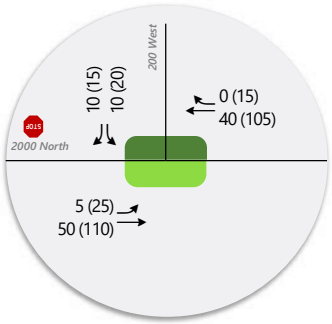
2. US-89/2000 North



3. US-89/W. Harrisville Rd



4. 200 West/2000 North



LEGEND

Stop Sign — Signalized

Lane Configuration — AM (PM) / AM (PM) / AM (PM) — Peak Hour Traffic Volume per lane

Intersection Level of Service (LOS):

AM / PM — A B C D E F

Figure 5

2025 Background Conditions

Future 2025 Plus Project Conditions

Purpose

The purpose of the future 2025 plus project conditions analysis is to evaluate the impact of the proposed development traffic on the surrounding roadway network in the year 2025. In order to analyze this impact, the projected 2025 peak hour background traffic volumes were combined with volumes generated by the proposed development for these peak hours. Analysis results were compared to the results of the background traffic volumes to show the impact of the proposed project.

Traffic Volumes

Project-generated traffic (**Figure 3**) was added to the future 2025 background volumes (**Figure 5**) to yield "future 2025 plus project" weekday AM and PM peak hour traffic volumes at the study intersections as shown in **Figure 6**.

Level of Service Analysis

The HCM 6 delay thresholds provided in the introduction were used to compute the LOS at each study intersection for each peak hour LOS. The results of this analysis for the weekday AM and PM peak hours are reported in **Table 8** (see Appendix for the detailed LOS report).

As shown in **Table 8**, all study intersections operate within acceptable LOS with the exception of the following locations:

- US-89 / 2000 North – LOS F in the PM peak hour.
    - This is caused by the stop-controlled westbound vehicles attempting to turn left onto US-89. The high volumes of through traffic on US-89 make it difficult for vehicles to turn out of 2000 North, causing high levels of delay.
- US-89 / North Access – LOS F in the PM peak hour.
    - This is caused by the stop-controlled westbound project-generated trips attempting to turn left onto US-89. The high volumes of through traffic on US-89 make it difficult for vehicles to turn out of the project access, causing high levels of delay without mitigation.

Table 8. Future 2025 Plus Project Conditions Peak Hour Level of Service

Intersection				Worst Movement[1]			Overall Intersection[2]	
ID	Location	Period	Control	Movement[3]	Delay (Sec/Veh)	LOS	Avg. Delay (Sec/Veh)	LOS
1	750 West / US-89	AM	Signal	-	-	-	8	A
		PM		-	-	-	10	B
2	US-89 / 2000 North	AM	WB Stop	WB LT	16	C	-	-
		PM		WB LT	**53**	**F**	-	-
3	US-89 / W. Harrisville Road	AM	Signal	-	-	-	12	B
		PM		-	-	-	25	C
4	200 West - West Access / 2000 North	AM	NB/SB Stop	SB LT	10	B	-	-
		PM		SB LT	12	B	-	-
5	US-89 / North Access	AM	WB Stop	WB LT	22	C	-	-
		PM		**WB LT**	**111**	**F**	-	-
6	US-89 / South Access	AM	WB Stop	WB LT	14	B	-	-
		PM		WB LT	28	D	-	-
7	2000 North / East Access	AM	NB/SB Stop	NB LT	9	A	-	-
		PM		NB LT	10	B	-	-

1. This represents the worst movement LOS and delay (seconds/vehicle) and is only reported for unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds/vehicle) and is only reported for signalized intersections and roundabouts.
3. NB=Northbound, SB=Southbound, EB=Eastbound, WB=Westbound, LT=Left-turn, RT=Right-turn, and TH=Through

Source: Fehr & Peers.

Mitigation Measures

Fehr & Peers recommends the same mitigations as the Existing 2020 Plus Project conditions. That included:

- US-89 / North Access
  - Install a signal when warrants are met. Peak hour volumes at this intersection warrant a signal (signal warrant evaluation attached in Appendix), but it is recommended that UDOT undertake regular monitoring of actual traffic conditions and accident data and timely re-evaluation of the full set of warrants.
  - With a signal at this location, the westbound left-turn movement is expected to experience a 95th percentile queue length of 178 feet and 143 feet in the AM peak hour and PM peak hour, respectively.
    - The proposed site plan shows an internal intersection approximately 150 feet from the north access. The 95th percentile queue shows that queues are expected to spill back into the internal intersection, possibly causing

added delay for the minor approaches. Signage and striping is recommended to keep the internal intersection clear to allow movements to happen in congested conditions. This however may extend the queue further east where the on-street parking begins.

- Alternatively, while the traffic don't warrant a second westbound left-turn lane out of the north access, by adding a second left-turn lane it reduces the 95th percentile queue length to 93 feet and 74 feet in the AM peak hour and PM peak hour, respectively and would keep the queue from spilling back past the internal intersection.

No mitigation measures are recommended at the US-89 / 2000 North intersection. It is however recommended that the City look into re-aligning 750 West to align with 2000 North, moving the existing signal at 750 West to 2000 North, as 2000 North provides better regional connectivity in the study area. The results of the mitigated conditions for 2025 plus project conditions are shown in **Table 9**. The mitigated LOS results are reflected in **Figure 6**.

Table 9. Future 2025 Plus Project Mitigated Conditions Peak Hour Level of Service

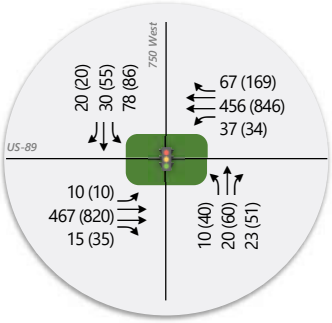
Intersection				Worst Movement[1]			Overall Intersection[2]	
ID	Location	Period	Control	Movement[3]	Delay (Sec/Veh)	LOS	Avg. Delay (Sec/Veh)	LOS
1	750 West / US-89	AM	Signal	-	-	-	5	A
		PM		-	-	-	7	A
2	US-89 / 2000 North	AM	WB Stop	WB LT	16	C	-	-
		PM		WB LT	**53**	**F**	-	-
3	US-89 / W. Harrisville Road	AM	Signal	-	-	-	12	B
		PM		-	-	-	25	C
4	200 West - West Access / 2000 North	AM	NB/SB Stop	SB LT	10	B	-	-
		PM		SB LT	12	B	-	-
5	US-89 / North Access	AM	Signal	-	-	-	11	B
		PM		-	-	-	8	A
6	US-89 / South Access	AM	WB Stop	WB LT	14	B	-	-
		PM		WB LT	28	D	-	-
7	2000 North / East Access	AM	NB/SB Stop	NB LT	9	A	-	-
		PM		NB LT	10	B	-	-

1. This represents the worst movement LOS and delay (seconds/vehicle) and is only reported for unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds/vehicle) and is only reported for signalized intersections and roundabouts.
3. NB=Northbound, SB=Southbound, EB=Eastbound, WB=Westbound, LT=Left-turn, RT=Right-turn, and TH=Through

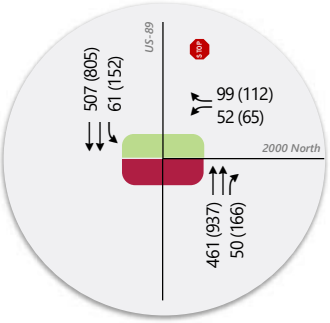
Source: Fehr & Peers.



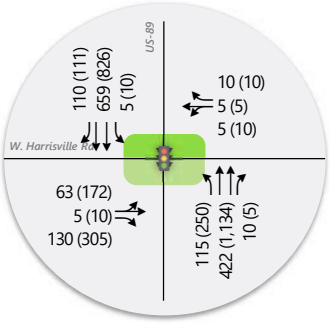
1. 750 West/US-89



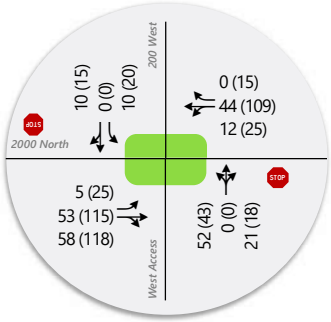
2. US-89/2000 North



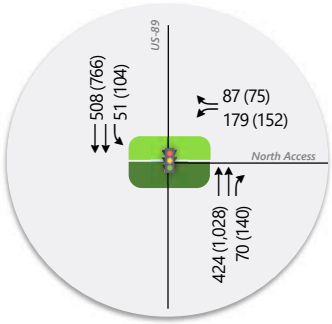
3. US-89/W. Harrisville Rd



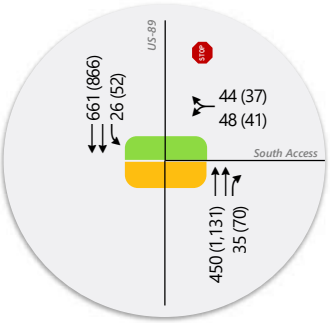
4. 200 West/2000 North



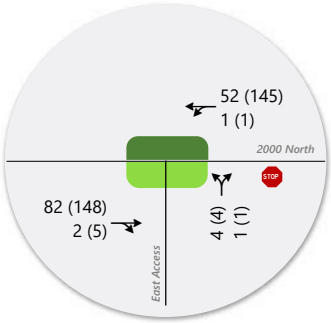
5. US-89/North Access



6. US-89/South Access



7. 2000 N./East Access



LEGEND

STOP *Stop Sign* *Signalized*

Lane Configuration AM (PM) AM (PM) AM (PM) *Peak Hour Traffic Volume per lane*

Intersection Level of Service (LOS):

AM / PM — A B C D E F

Figure 6

2025 + Project Conditions

Future 2040 Cumulative Conditions

Purpose

The purpose of the future 2040 cumulative conditions analysis is to evaluate the study intersections during the peak travel periods of the day under projected 2040 traffic volumes. This analysis provides a baseline condition for the year 2040, which can be used to determine future project impacts.

Planned Projects

Fehr & Peers reviewed future projected volumes in the study area presented in the WFRC Travel Demand Model. The WFRC model shows some planned growth on the parcel west of the project site across US-89. The assumed growth shown in the WFRC model was added onto the study area via a fourth leg of the proposed north access on US-89 of the Ben Lomond Views development site.

Traffic Volumes

Fehr & Peers projected 2040 volumes using linear annual growth rates based on the WFRC Travel Demand Model. The following annual growth rates extracted from the model were used for this analysis:

- 1.0% on US-89
- 0.8% on 2000 North
- 0.7% on West Harrisville Road

A minimum annual growth rate of 0.5% was also assumed for the minor roadways (750 West and 200 West) in the study area. In addition to the background growth, the trips from the assumed growth caused by the western development, as mentioned above, were distributed to the study intersections using the same trip distribution percentages as listed in the Project Conditions section above. The projected 2040 background weekday AM and PM peak hour traffic volumes are shown in **Figure 7**.

Level of Service Analysis

The HCM 6 delay thresholds provided in the introduction were used to compute the LOS at each study intersection for each peak hour LOS. The results of this analysis for the weekday AM and PM peak hours are reported in **Table 10** (see Appendix for the detailed LOS report).

Table 10. Future 2040 Cumulative Conditions Peak Hour Level of Service

Intersection				Worst Movement[1]			Overall Intersection[2]	
ID	Location	Period	Control	Movement[3]	Delay (Sec/Veh)	LOS	Avg. Delay (Sec/Veh)	LOS
1	750 West / US-89	AM	Signal	-	-	-	8	A
		PM		-	-	-	10	B
2	US-89 / 2000 North	AM	WB Stop	WB LT	15	B	-	-
		PM		**WB LT**	**41**	**E**	-	-
3	US-89 / W. Harrisville Road	AM	Signal	-	-	-	10	B
		PM		-	-	-	19	B
4	200 West / 2000 North	AM	SB Stop	SB LT	9	A	-	-
		PM		SB LT	11	B	-	-

1. This represents the worst movement LOS and delay (seconds/vehicle) and is only reported for unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds/vehicle) and is only reported for signalized intersections and roundabouts.
3. NB=Northbound, SB=Southbound, EB=Eastbound, WB=Westbound, LT=Left-turn, RT=Right-turn, and TH=Through

Source: Fehr & Peers.

As shown in **Table 10**, all study intersections operate within acceptable LOS with the exception of the following locations:

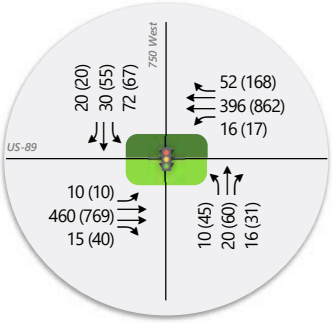
- US-89 / 2000 North – LOS E in the PM peak hour.
    - This is caused by the stop-controlled westbound vehicles attempting to turn left onto US-89. The high volumes of through traffic on US-89 make it difficult for vehicles to turn out of 2000 North, causing high levels of delay. If this condition worsens over the years, UDOT may want to evaluate restricting left-turns out of the intersection.

Mitigation Measures

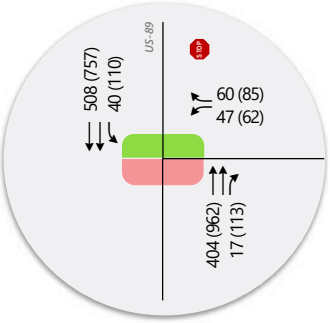
No mitigation measures are recommended at the US-89 / 2000 North intersection. It is however recommended that the City look into re-aligning 750 West to align with 2000 North, moving the existing signal at 750 West to 2000 North, as 2000 North provides better regional connectivity in the study area.



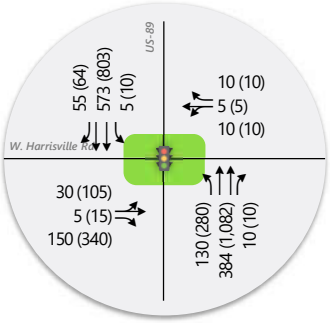
1. 750 West/US-89



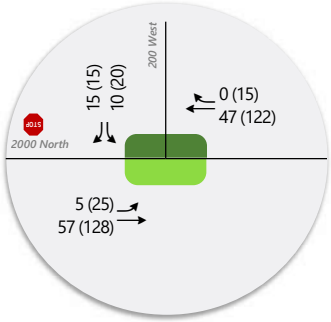
2. US-89/2000 North



3. US-89/W. Harrisville Rd



4. 200 West/2000 North



LEGEND

STOP *Stop Sign* *Signalized*

Lane Configuration AM (PM) AM (PM) AM (PM) *Peak Hour Traffic Volume per lane*

Intersection Level of Service (LOS):

AM PM A B C D E F

Figure 7

2040 Cumulative Conditions

Future 2040 Plus Project Conditions

Purpose

The purpose of the future 2040 plus project conditions analysis is to evaluate the impact of the proposed development traffic on the surrounding roadway network in the year 2040. In order to analyze this impact, the projected 2040 peak hour cumulative traffic volumes were combined with volumes generated by the proposed development for these peak hours. Analysis results were compared to the results of the background traffic volumes to show the impact of the proposed project.

Traffic Volumes

Project-generated traffic (**Figure 3**) was added to the future 2040 cumulative volumes (**Figure 7**) to yield "future 2040 plus project" weekday AM and PM peak hour traffic volumes at the study intersections as shown in **Figure 8**. For 2040 cumulative conditions, a potential future development was assumed to be in place at the parcel to the west of Ben Lomond Views across US-89. An access for the western development was assumed to be aligned with the Ben Lomond Views north project access on US-89, resulting in a four-way full intersection. A small percentage of the project-generated trips were assumed to travel between the two developments.

Level of Service Analysis

The HCM 6 delay thresholds provided in the introduction were used to compute the LOS at each study intersection for the future 2040 plus project for each peak hour. The results of this analysis for the weekday AM and PM peak hours are reported in **Table 11** (see Appendix for the detailed LOS report).

Table 11. Future 2040 Plus Project Conditions Peak Hour Level of Service

Intersection				Worst Movement[1]			Overall Intersection[2]	
ID	Location	Period	Control	Movement[3]	Delay (Sec/Veh)	LOS	Avg. Delay (Sec/Veh)	LOS
1	750 West / US-89	AM	Signal	-	-	-	8	A
		PM		-	-	-	11	B
2	US-89 / 2000 North	AM	WB Stop	WB LT	18	C	-	-
		PM		**WB LT**	**89**	**F**	-	-
3	US-89 / W. Harrisville Road	AM	Signal	-	-	-	13	B
		PM		-	-	-	30	C
4	200 West - West Access / 2000 North	AM	NB/SB Stop	SB LT	10	B	-	-
		PM		SB LT	13	B	-	-
5	US-89 / North Access	AM	EB/WB Stop	**WB LT**	**148**	**F**	-	-
		PM		**WB LT**	**180+**	**F**	-	-
6	US-89 / South Access	AM	WB Stop	WB LT	15	C	-	-
		PM		**WB LT**	**36**	**E**	-	-
7	2000 North / East Access	AM	NB/SB Stop	NB LT	9	A	-	-
		PM		NB LT	10	B	-	-

1. This represents the worst movement LOS and delay (seconds/vehicle) and is only reported for unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds/vehicle) and is only reported for signalized intersections and roundabouts.
3. NB=Northbound, SB=Southbound, EB=Eastbound, WB=Westbound, LT=Left-turn, RT=Right-turn, and TH=Through

Source: Fehr & Peers.

As shown in **Table 11**, all study intersections operate within acceptable LOS with the exception of the following locations:

- US-89 / 2000 North – LOS F in the PM peak hour.
  - This is caused by the stop-controlled westbound vehicles attempting to turn left onto US-89. The high volumes of through traffic on US-89 make it difficult for vehicles to turn out of 2000 North, causing high levels of delay.
- US-89 / North Access – LOS F in the PM peak hour.
  - This is caused by the stop-controlled westbound project-generated trips attempting to turn left onto US-89. The high volumes of through traffic on US-89 make it difficult for vehicles to turn out of the project access, causing high levels of delay without mitigation.
- US-89 / South Access – LOS E in the PM peak hour.
  - This is caused by the stop-controlled westbound project-generated trips attempting to turn left onto US-89. The high volumes of through traffic on US-89

make it difficult for vehicles to turn out of the project access, causing high levels of delay without mitigation.

Mitigation Measures

Fehr & Peers recommends the following mitigation measures for 2040 plus project conditions:

- US-89 / North Access (this is the same mitigation recommended in the previous "Plus Project" scenarios)
    - Install a signal when warrants are met. Peak hour volumes at this intersection warrant a signal (signal warrant evaluation attached in Appendix), but it is recommended that UDOT undertake regular monitoring of actual traffic conditions and accident data and timely re-evaluation of the full set of warrants.
    - With a signal at this location, the westbound left-turn movement is expected to experience a 95th percentile queue length of 213 feet and 173 feet in the AM peak hour and PM peak hour, respectively.
        - The proposed site plan shows an internal intersection approximately 150 feet from the north access. The 95th percentile queue shows that queues are expected to spill back into the internal intersection, possibly causing added delay for the minor approaches. Signage and striping is recommended to keep the internal intersection clear to allow movements to happen in congested conditions. This however may extend the queue further east where the on-street parking begins.
        - Alternatively, while the traffic don't warrant a second westbound left-turn lane out of the north access, by adding a second left-turn lane it reduces the 95th percentile queue length to 114 feet and 89 feet in the AM peak hour and PM peak hour, respectively and would keep the queue from spilling back past the internal intersection.
- US-89 / South Access
    - Restrict left-turns out of the south project access on US-89. Left-turns into the project access could still be allowed.

No mitigation measures are recommended at the US-89 / 2000 North intersection. It is however recommended that the City look into re-aligning 750 West to align with 2000 North, moving the existing signal at 750 West to 2000 North, as 2000 North provides better regional connectivity in the study area. The results of the mitigated conditions for 2040 plus project conditions are shown in **Table 12**. The mitigated LOS results are reflected in **Figure 8**.

Table 12. Future 2040 Plus Project Conditions Peak Hour Level of Service

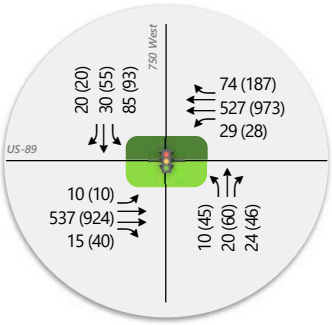
Intersection				Worst Movement[1]			Overall Intersection[2]	
ID	Location	Period	Control	Movement[3]	Delay (Sec/Veh)	LOS	Avg. Delay (Sec/Veh)	LOS
1	750 West / US-89	AM	Signal	-	-	-	5	A
		PM		-	-	-	17	B
2	US-89 / 2000 North	AM	WB Stop	WB LT	18	C	-	-
		PM		**WB LT**	**75**	**F**	-	-
3	US-89 / W. Harrisville Road	AM	Signal	-	-	-	13	B
		PM		-	-	-	30	C
4	200 West - West Access / 2000 North	AM	NB/SB Stop	SB LT	10	B	-	-
		PM		SB LT	13	B	-	-
5	US-89 / North Access	AM	Signal	-	-	-	12	B
		PM		-	-	-	18	B
6	US-89 / South Access	AM	WB Stop	WB RT	10	B	-	-
		PM		WB RT	15	C	-	-
7	2000 North / East Access	AM	NB/SB Stop	NB LT	9	A	-	-
		PM		NB LT	10	B	-	-

1. This represents the worst movement LOS and delay (seconds/vehicle) and is only reported for unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds/vehicle) and is only reported for signalized intersections and roundabouts.
3. NB=Northbound, SB=Southbound, EB=Eastbound, WB=Westbound, LT=Left-turn, RT=Right-turn, and TH=Through

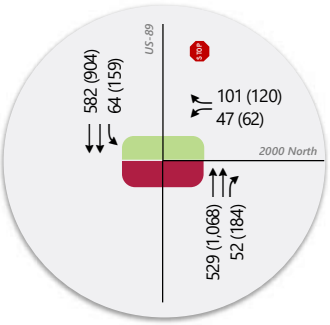
Source: Fehr & Peers.



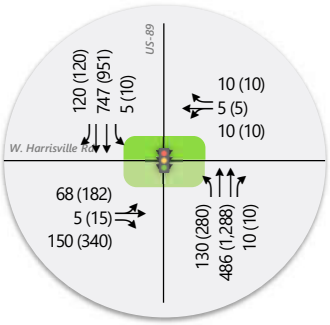
1. 750 West/US-89



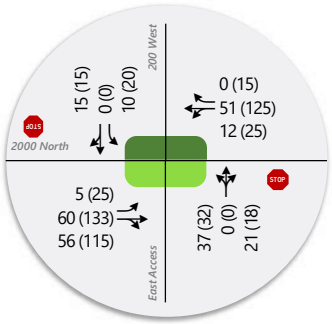
2. US-89/2000 North



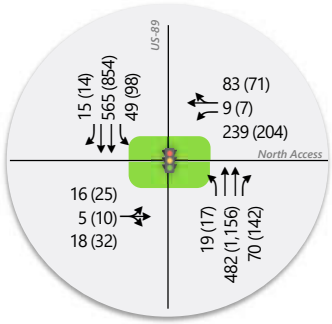
3. US-89/W. Harrisville Rd



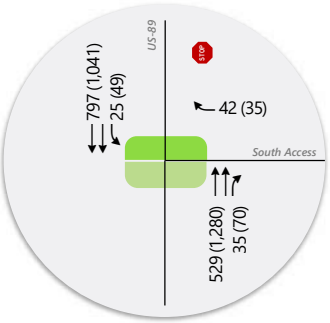
4. 200 West/2000 North



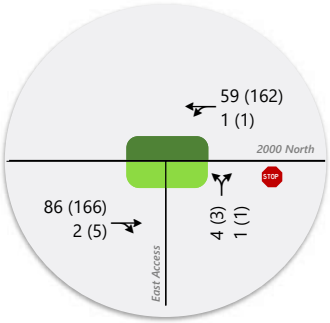
5. US-89/North Access



6. US-89/South Access



7. 2000 N./East Access



LEGEND

STOP *Stop Sign* *Signalized*

Lane Configuration AM (PM) / AM (PM) / AM (PM) *Peak Hour Traffic Volume per lane*

Intersection Level of Service (LOS):

AM / PM — A B C D E F

Figure 8

2040+Project Conditions

Auxiliary Lane/Sight Distance

The required auxiliary lane configuration and sight distance at the proposed project accesses on US-89 were evaluated to assess required lanes and traffic safety with the proposed development.

Auxiliary Lane

Based on UDOT standards and American Association of State Highway and Transportation Officials (AASHTO) standards, Fehr & Peers recommends the following auxiliary turning lanes at the proposed project accesses on US-89:

- Utilize the existing two-way left-turn (TWLT) lane for an exclusive southbound left-turn lane: storage length of 100 ft, taper length of 245 ft.
- Utilize the existing shoulder width to develop an exclusive northbound right-turn lane: storage length of 100 ft, deceleration length of 385 ft.
- Utilize the existing shoulder width to develop an acceleration lane for right-turn out: 1,145 ft total (including a 660 ft taper). With a recommended signal at the north access, the acceleration lane is not required for traffic operation purposes. It is recommended that UDOT consider if the acceleration lane would be beneficial for safety purposes.

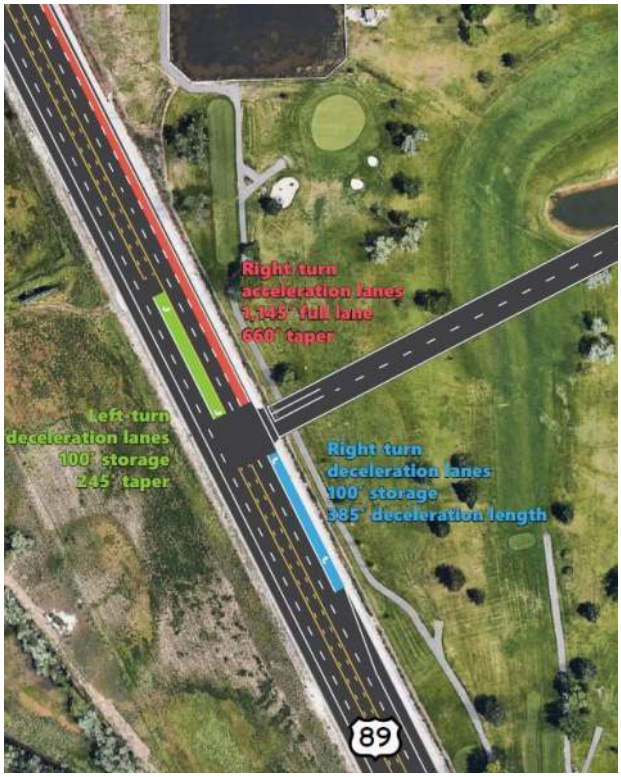


Figure 9: Recommended Auxiliary Lanes at US-89 Project Access

Sight Distance

Intersection sight distance is necessary for drivers to safely approach, cross, and/or turn at an intersection, and varies based on speed limit and street grade. The recommended distance assumes a passenger car can turn right or left without being overtaken by an approaching vehicle. *A Policy on Geometric Design of Highways and Streets*, 7th Edition, American Association of State Highway and Transportation Officials (AASHTO), 2018, was referenced to determine recommended sight distance for intersections with stop-control on the minor road.

The speed of traffic along US-89 was assumed to be 55 mph, based on the posted speed limit. The recommended sight distances for left-turns and right-turns out of the project accesses on US-89 are shown in **Table 13**.

Table 13. Intersection Sight Distance at Project Accesses

Location	Control	Maneuver	Recommended Sight Distance (feet)
US-89 / North Access & US-89 / South Access	WB Stop	Left-Turn	N/A
		Right-Turn	530

Source: A Policy on Geometric Design of Highways and Streets, 7th Edition, AASHTO, 2018.

US-89 currently provides a 15-ft left-turn median. AASHTO states that "if the median on a divided road or street is wide enough to store the design vehicle with a clearance to the through lanes of approximately 3 ft at both ends of the vehicle, no-separate analysis for the departure sight triangle for left turns is needed on the minor-road approach for the near roadway to the left." The current median on US-89 should be sufficient for vehicles to make a 2-stage left turn, and the recommended sight distance for the right-turn maneuver should be adequate to provide safe left-turn maneuvers out of the project accesses.

The sight distances shown in **Table 13** are recommended values based on the short-term assumption of both the north and south accesses being stop-controlled. As stated previously, a signal is recommended at the north access when warranted. For intersections with traffic signal control, AASHTO states that apart from providing sufficient sight distance for left-turning vehicles to select gaps in oncoming traffic to make the turn, "there are generally no other approach or departure sight triangles needed…" The recommended sight distance for right-turn maneuvers as shown in **Table 13** still applies for vehicles attempting to make right turns on a red signal.

Also as stated previously, Fehr & Peers recommends that left-turns out of the south access be restricted in the long term. In that case, there are no departure sight distance requirements for the left-turns.

The roadway geometry of US-89 in the study area currently has very minimal vertical and horizontal curvature. The proposed project accesses on US-89 should have adequate sight distance with the recommended sight distances. It is recommended that no objects or landscaping be placed along the frontage of the project on US-89 that will possibly obstruct with the required sight distance.

Safety

From 2017-2019 there were 46 crashes along US-89 in the project study area. 28 of these crashes did not cause injury, 17 crashes included an injury, and one crash was fatal. This fatal crash was in 2018 at the intersection of US-89 and 2000 North. A motorcycle was travelling northbound on US-89 when a passenger vehicle turning left from 2000 North onto US-89 collided with the motorcyclist, leading to his/her death. This crash occurred in clear daylight conditions.

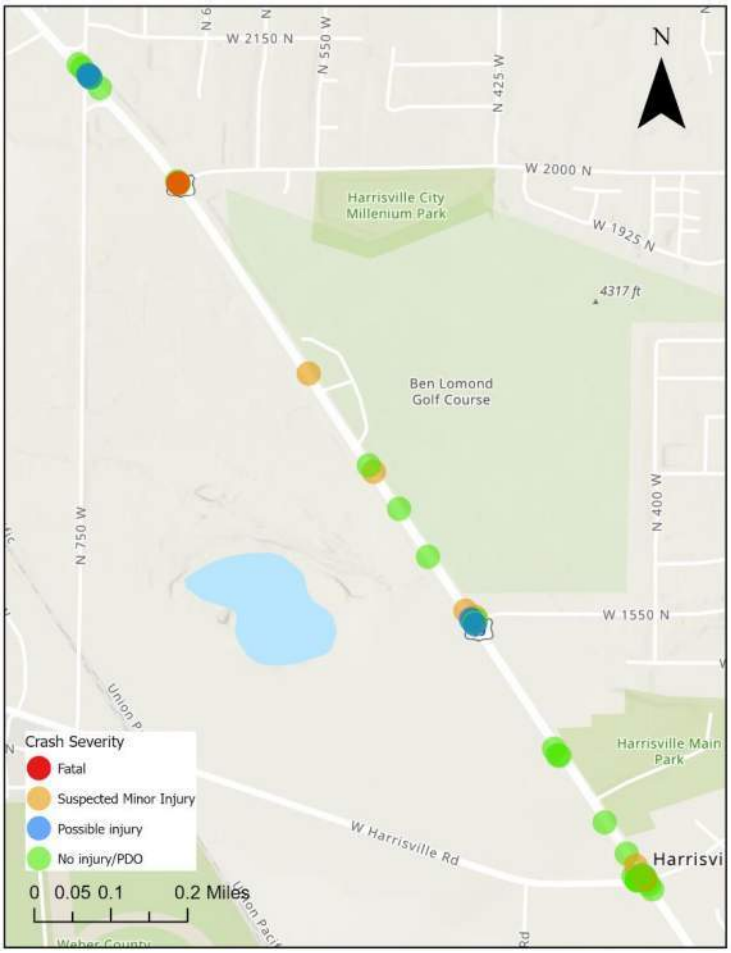


Figure 10: 2017-2019 Crashes along US-89 in the Project Study Area. Source: UDOT Numetrics

Of the 46 crashes along US-89 in the study area, 16 crashes were angle collisions, 12 were front-to-rear collisions, and six crashes were single vehicle crashes. There were fewer than three of all other collision types (head-on, sideswipe, rear-to-side).

Conclusion

All study intersections operate within acceptable levels of delay during the peak hours for existing and 2025 background conditions. In 2040, the US-89 / 2000 North intersection is expected to operate at LOS E without the project.

With the addition of the project-generated traffic, all study intersections continue to operate within acceptable LOS during the peak hours with the exception of the following locations in existing, 2025, and 2040 conditions:

- US-89 / 2000 North – LOS E or F in the PM peak hour
- US-89 / North Access – LOS F in the PM peak hour

In 2040, with the addition of the project-generated traffic, the US-89 / South Access intersection also operates at LOS E in the PM peak hour.

Fehr & Peers recommends the following mitigation measures for plus project conditions:

- US-89 / North Access
    - Install a signal when warrants are met. Peak hour volumes at this intersection warrant a signal, but it is recommended that UDOT undertake regular monitoring of actual traffic conditions and crash data and conduct a timely re-evaluation of the full set of warrants.
- US-89 / South Access
    - Restrict left-turns out of the south project access on US-89. Left-turns into the project access could still be allowed.

No mitigation measures are recommended at the US-89 / 2000 North intersection. It is however recommended that the City look into re-aligning 750 West to align with 2000 North, moving the existing signal at 750 West to 2000 North, as 2000 North provides better regional connectivity in the study area.

Appendix

Site Plan



BEN LOMOND VIEWS

PRELIMINARY CONCEPT PLAN

JULY 30, 2020

Traffic Counts

FEHR PEERS

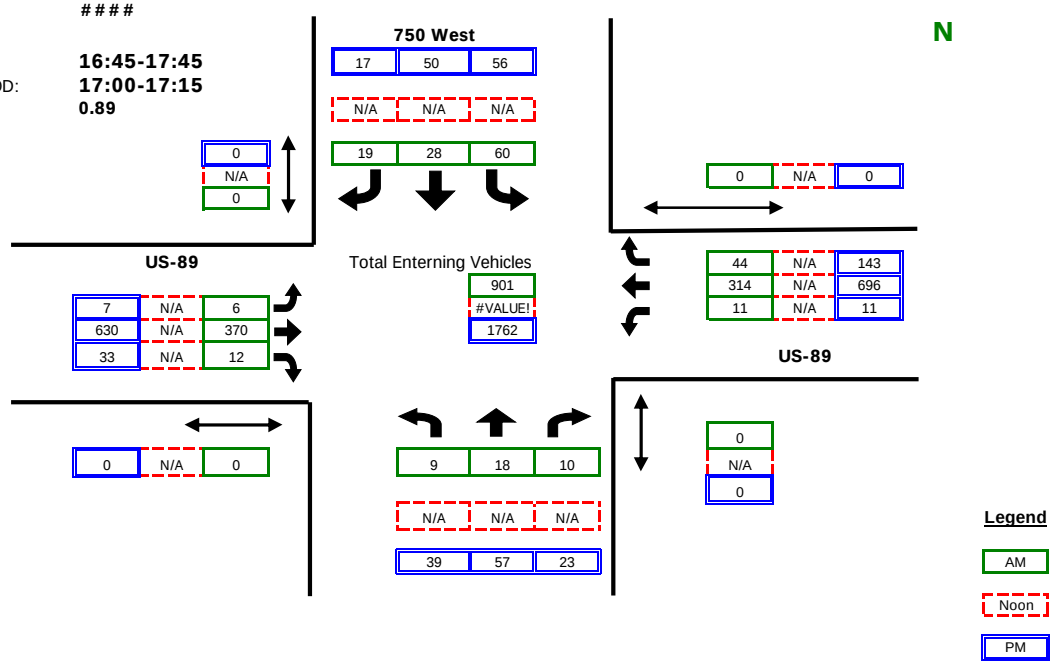
Intersection Turning Movement Summary

Intersection:	**750 West/US-89**	**Date:**	**7/22/2020**
	North/South: 750 West	**Day of Week Adjustment:**	**100.0%**
	East/West: US-89	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**UDOT**	**Adjustment Station #:**	
Project Title:	**Harrisville Ben Lomond Views**	**Growth Rate:**	**0.0%**
Project No:	**UT20-2226**	**Number of Years:**	**0**
Weather:	**Clear**		

AM PEAK HOUR PERIOD: **7:45-8:45**
AM PEAK 15 MINUTE PERIOD: **7:45-8:00**
AM PHF: **0.87**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: ####

PM PEAK HOUR PERIOD: **16:45-17:45**
PM PEAK 15 MINUTE PERIOD: **17:00-17:15**
PM PHF: **0.89**



RAW COUNT SUMMARIES	750 West Northbound				750 West Southbound				US-89 Eastbound				US-89 Westbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
7:00-7:15	0	2	4	0	6	9	5	1	1	64	1	0	2	53	5	0	152
7:15-7:30	0	3	2	0	14	5	7	1	1	82	6	0	4	64	6	0	194
7:30-7:45	6	3	0	0	11	10	4	0	1	86	4	0	1	59	4	0	189
7:45-8:00	3	7	2	0	17	5	1	0	1	126	5	0	0	82	10	0	259
8:00-8:15	1	4	2	0	16	2	6	0	2	82	2	0	2	74	13	0	206
8:15-8:30	2	5	4	0	13	11	8	0	2	75	1	0	3	79	15	0	218
8:30-8:45	3	2	2	0	14	10	4	0	1	87	4	0	6	79	6	0	218
8:45-9:00	6	5	1	0	20	5	5	0	0	91	7	0	2	91	23	0	256

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
16:00-16:15	3	10	6	0	13	5	2	0	1	151	8	0	4	171	34	0	408
16:15-16:30	3	11	3	0	14	9	9	0	1	137	8	0	4	173	41	0	413
16:30-16:45	2	13	9	0	17	6	2	0	2	151	3	0	3	150	38	0	396
16:45-17:00	7	14	5	0	10	11	2	0	0	143	7	0	4	176	25	0	404
17:00-17:15	14	15	8	0	19	11	4	0	4	182	7	0	3	190	38	0	495
17:15-17:30	13	19	7	0	15	14	4	0	1	152	11	0	2	160	36	0	434
17:30-17:45	5	9	3	0	12	14	7	0	2	153	8	0	2	170	44	0	429
17:45-18:00	6	8	7	0	12	10	4	0	2	159	11	0	8	150	47	0	424

FEHR PEERS

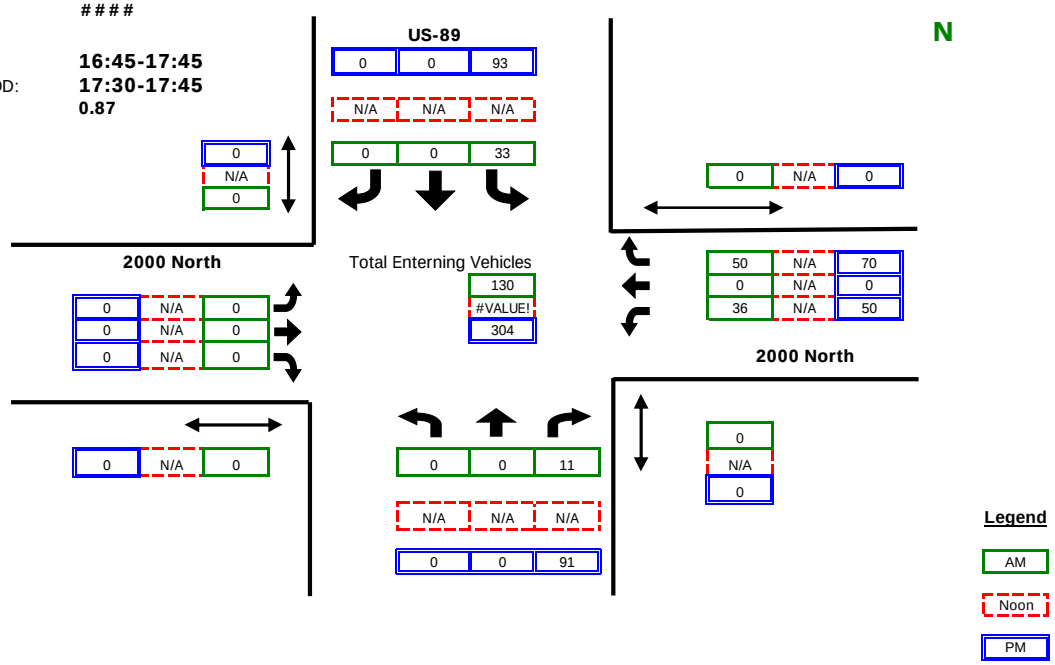
Intersection Turning Movement Summary

Intersection:	**US-89/2000 North**	**Date:**	**7/22/2020**
	North/South: US-89	**Day of Week Adjustment:**	**100.0%**
	East/West: 2000 North	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**UDOT**	**Adjustment Station #:**	
Project Title:	**Harrisville Ben Lomond Views**	**Growth Rate:**	**0.0%**
Project No:	**UT20-2226**	**Number of Years:**	**0**
Weather:	**Clear**		

AM PEAK HOUR PERIOD: **7:45-8:45**
AM PEAK 15 MINUTE PERIOD: **7:45-8:00**
AM PHF: **0.90**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: **####**

PM PEAK HOUR PERIOD: **16:45-17:45**
PM PEAK 15 MINUTE PERIOD: **17:30-17:45**
PM PHF: **0.87**



RAW COUNT SUMMARIES	US-89 Northbound				US-89 Southbound				2000 North Eastbound				2000 North Westbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
7:00-7:15	0	0	2	1	8	0	0	0	0	0	0	0	8	0	14	1	32
7:15-7:30	0	0	3	0	6	0	0	0	0	0	0	0	10	0	12	2	31
7:30-7:45	0	0	3	0	5	0	0	0	0	0	0	0	11	0	12	1	31
7:45-8:00	0	0	2	0	12	0	0	0	0	0	0	0	14	0	8	0	36
8:00-8:15	0	0	3	0	5	0	0	0	0	0	0	0	12	0	15	0	35
8:15-8:30	0	0	5	0	9	0	0	0	0	0	0	0	5	0	9	0	28
8:30-8:45	0	0	1	0	7	0	0	0	0	0	0	0	5	0	18	0	31
8:45-9:00	0	0	9	0	7	0	0	0	0	0	0	0	10	0	14	0	40

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
16:00-16:15	0	0	20	0	20	0	0	0	0	0	0	0	12	0	12	0	64
16:15-16:30	0	0	24	0	23	0	0	0	0	0	0	0	9	0	23	1	79
16:30-16:45	0	0	13	0	22	0	0	0	0	0	0	0	7	0	9	0	51
16:45-17:00	0	0	15	0	18	0	0	0	0	0	0	0	11	0	16	0	60
17:00-17:15	0	0	22	0	26	0	0	0	0	0	0	0	12	0	17	0	77
17:15-17:30	0	0	28	0	23	0	0	0	0	0	0	0	9	0	20	0	80
17:30-17:45	0	0	26	0	26	0	0	0	0	0	0	0	18	0	17	0	87
17:45-18:00	0	0	25	0	30	0	0	0	0	0	0	0	6	0	20	0	81

FEHR PEERS

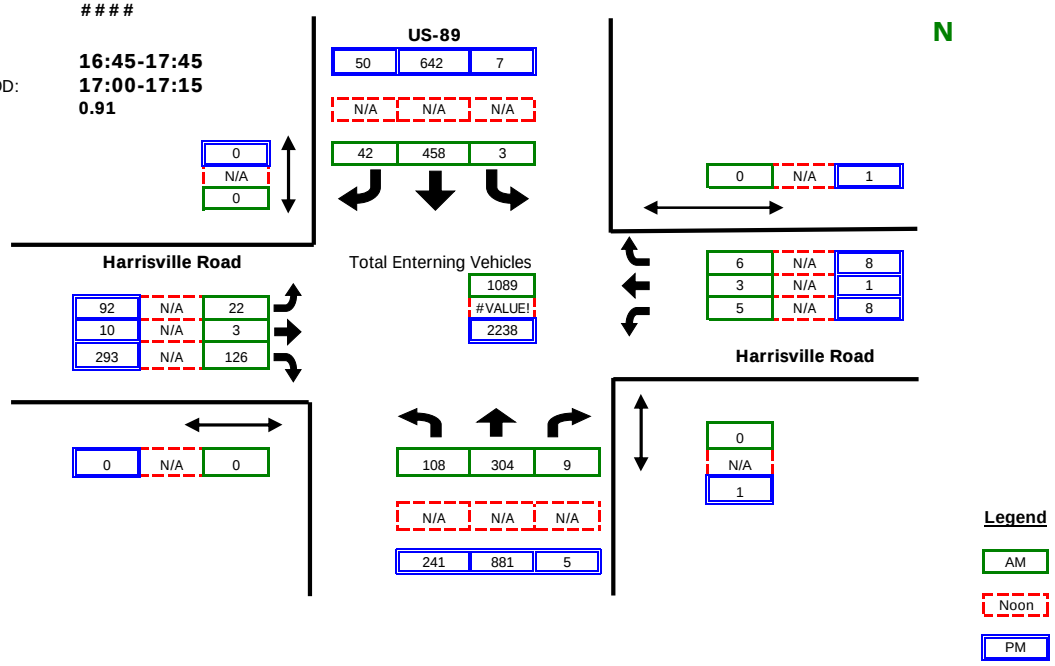
Intersection Turning Movement Summary

Intersection:	**US-89 / Harrisville Road**	**Date:**	**7/22/2020**
	North/South: US-89	**Day of Week Adjustment:**	**100.0%**
	East/West: Harrisville Road	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**UDOT**	**Adjustment Station #:**	
Project Title:	**Harrisville Ben Lomond Views**	**Growth Rate:**	**0.0%**
Project No:	**UT20-2226**	**Number of Years:**	**0**
Weather:	**Clear**		

AM PEAK HOUR PERIOD: **7:45-8:45**
AM PEAK 15 MINUTE PERIOD: **7:45-8:00**
AM PHF: **0.85**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: **####**

PM PEAK HOUR PERIOD: **16:45-17:45**
PM PEAK 15 MINUTE PERIOD: **17:00-17:15**
PM PHF: **0.91**



RAW COUNT SUMMARIES	US-89 Northbound				US-89 Southbound				Harrisville Road Eastbound				Harrisville Road Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
7:00-7:15	31	45	0	0	1	67	6	0	0	0	43	0	0	0	0	0	193
7:15-7:30	27	57	0	0	1	106	8	0	6	1	33	1	1	1	0	2	241
7:30-7:45	23	58	1	0	0	103	13	0	0	0	46	0	0	1	0	0	245
7:45-8:00	33	73	1	0	1	156	15	0	4	2	31	0	1	1	1	0	319
8:00-8:15	28	74	2	0	1	107	10	0	8	0	31	0	0	1	3	0	265
8:15-8:30	18	80	2	0	0	87	10	0	5	1	34	0	2	0	1	0	240
8:30-8:45	29	77	4	0	1	108	7	0	5	0	30	0	2	1	1	0	265
8:45-9:00	17	102	0	0	2	117	10	0	8	2	27	0	2	0	1	0	288

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
16:00-16:15	60	220	3	0	1	160	3	0	13	2	93	0	2	0	3	3	560
16:15-16:30	78	216	1	0	2	148	9	0	19	0	62	0	0	0	1	0	536
16:30-16:45	41	198	2	0	1	159	11	0	22	1	81	0	1	1	2	0	520
16:45-17:00	56	213	1	0	0	148	13	0	21	4	74	0	0	1	3	0	534
17:00-17:15	60	230	1	0	3	182	14	0	29	1	90	0	4	0	1	0	615
17:15-17:30	69	200	2	1	3	154	10	0	20	4	66	0	2	0	2	1	532
17:30-17:45	56	238	1	0	1	158	13	0	22	1	63	0	2	0	2	0	557
17:45-18:00	61	206	3	0	0	143	7	0	8	0	54	0	3	0	2	0	487

FEHR PEERS

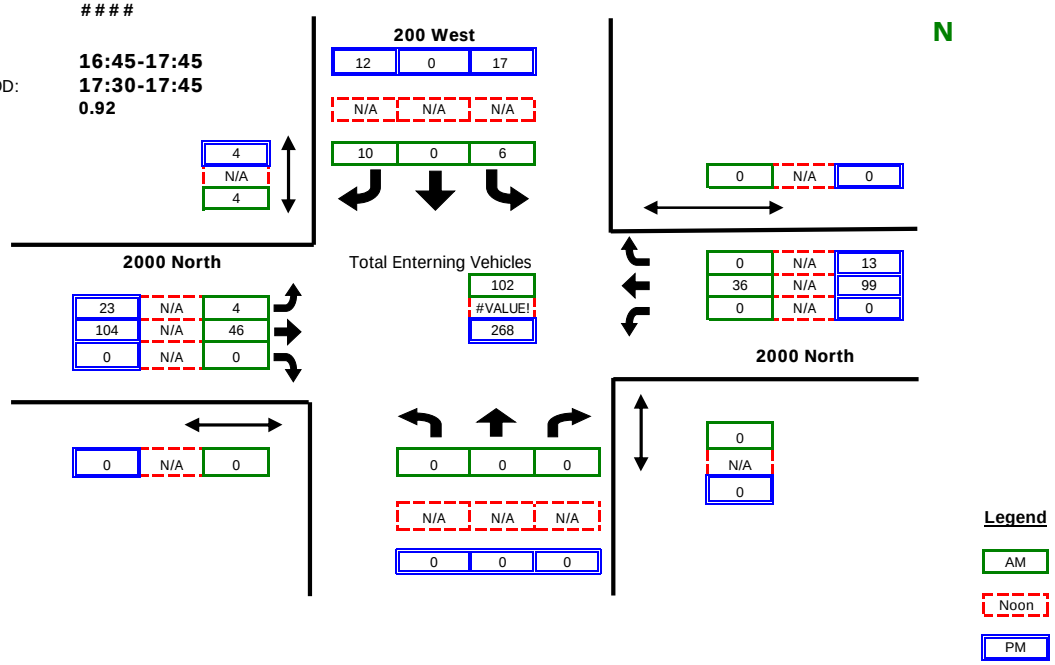
Intersection Turning Movement Summary

Intersection:	**200 West/2000 North**	**Date:**	**7/22/2020**
	North/South: 200 West	**Day of Week Adjustment:**	**100.0%**
	East/West: 2000 North	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**UDOT**	**Adjustment Station #:**	
Project Title:	**Harrisville Ben Lomond Views**	**Growth Rate:**	**0.0%**
Project No:	**UT20-2226**	**Number of Years:**	**0**
Weather:	**Clear**		

AM PEAK HOUR PERIOD: **7:45-8:45**
AM PEAK 15 MINUTE PERIOD: **8:30-8:45**
AM PHF: **0.80**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: ####

PM PEAK HOUR PERIOD: **16:45-17:45**
PM PEAK 15 MINUTE PERIOD: **17:30-17:45**
PM PHF: **0.92**



RAW COUNT SUMMARIES	200 West Northbound				200 West Southbound				2000 North Eastbound				2000 North Westbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
7:00-7:15	0	0	0	0	3	0	3	4	1	9	0	0	0	9	1	0	26
7:15-7:30	0	0	0	1	0	0	2	3	0	8	0	0	0	11	0	0	21
7:30-7:45	0	0	0	0	2	0	4	0	0	11	0	0	0	6	1	0	24
7:45-8:00	0	0	0	0	1	0	5	1	2	8	0	0	0	9	0	0	25
8:00-8:15	0	0	0	0	0	0	2	3	0	15	0	0	0	8	0	0	25
8:15-8:30	0	0	0	0	3	0	0	0	1	13	0	0	0	3	0	0	20
8:30-8:45	0	0	0	0	2	0	3	0	1	10	0	0	0	16	0	0	32
8:45-9:00	0	0	0	0	1	0	1	2	0	16	0	0	0	16	0	0	34

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
16:00-16:15	0	0	0	0	0	0	2	0	4	23	0	0	0	11	2	0	42
16:15-16:30	0	0	0	0	3	0	2	0	5	24	0	0	0	20	2	0	56
16:30-16:45	0	0	0	0	0	0	4	0	3	27	0	0	0	21	5	0	60
16:45-17:00	0	0	0	0	4	0	5	0	7	25	0	0	0	23	3	0	67
17:00-17:15	0	0	0	0	7	0	2	0	4	28	0	0	0	26	2	0	69
17:15-17:30	0	0	0	0	1	0	3	4	7	19	0	0	0	26	3	0	59
17:30-17:45	0	0	0	0	5	0	2	0	5	32	0	0	0	24	5	0	73
17:45-18:00	0	0	0	0	0	0	1	3	12	25	0	0	0	15	1	0	54

LOS Results



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	370	12	11	314	44	9	18	10	60	28	19
Future Volume (veh/h)	6	370	12	11	314	44	9	18	10	60	28	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1633	1870	1870	1648	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	425	7	13	361	27	10	21	0	69	32	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	18	2	2	17	2	2	2	2	2	2	2
Cap, veh/h	680	1837	919	648	1854	938	237	157		246	157	
Arrive On Green	0.59	0.59	0.59	0.59	0.59	0.59	0.08	0.08	0.00	0.08	0.08	0.00
Sat Flow, veh/h	996	3103	1552	956	3131	1585	1373	1870	1585	1386	1870	1585
Grp Volume(v), veh/h	7	425	7	13	361	27	10	21	0	69	32	0
Grp Sat Flow(s),veh/h/ln	996	1552	1552	956	1566	1585	1373	1870	1585	1386	1870	1585
Q Serve(g_s), s	0.2	3.2	0.1	0.3	2.7	0.4	0.3	0.5	0.0	2.4	0.8	0.0
Cycle Q Clear(g_c), s	2.8	3.2	0.1	3.6	2.7	0.4	1.1	0.5	0.0	2.9	0.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	680	1837	919	648	1854	938	237	157		246	157	
V/C Ratio(X)	0.01	0.23	0.01	0.02	0.19	0.03	0.04	0.13		0.28	0.20	
Avail Cap(c_a), veh/h	680	1837	919	648	1854	938	380	352		390	352	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.4	4.8	4.2	5.7	4.7	4.2	21.9	21.2	0.0	22.6	21.3	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.1	0.2	0.1	0.0	0.1	0.0	0.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.0	0.0	0.4	0.1	0.1	0.2	0.0	0.7	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.4	5.1	4.2	5.7	4.9	4.3	21.9	21.4	0.0	22.8	21.6	0.0
LnGrp LOS	A	A	A	A	A	A	C	C		C	C	
Approach Vol, veh/h		439			401			31	A		101	A
Approach Delay, s/veh		5.1			4.9			21.5			22.4	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		37.2		12.8		37.2		12.8				
Change Period (Y+Rc), s		* 7.6		* 8.6		* 7.6		* 8.6				
Max Green Setting (Gmax), s		* 24		* 9.4		* 24		* 9.4				
Max Q Clear Time (g_c+I1), s		5.6		3.1		5.2		4.9				
Green Ext Time (p_c), s		1.2		0.0		1.4		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		7.4
HCM 6th LOS		A

Notes

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

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

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

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	50	319	11	33	407
Future Vol, veh/h	36	50	319	11	33	407
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	17	2	2	18
Mvmt Flow	40	56	354	12	37	452

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	655	178	0	0	367	0
Stage 1	355	-	-	-	-	-
Stage 2	300	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	399	834	-	-	1188	-
Stage 1	681	-	-	-	-	-
Stage 2	725	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	386	833	-	-	1187	-
Mov Cap-2 Maneuver	492	-	-	-	-	-
Stage 1	680	-	-	-	-	-
Stage 2	703	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	492	833	1187	-
HCM Lane V/C Ratio	-	-	0.081	0.067	0.031	-
HCM Control Delay (s)	-	-	13	9.6	8.1	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	3	126	5	3	6	108	304	9	3	458	42
Future Volume (veh/h)	22	3	126	5	3	6	108	304	9	3	458	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1648	1870	1870	1633	1870
Adj Flow Rate, veh/h	26	4	0	6	4	0	127	358	6	4	539	24
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	17	2	2	18	2
Cap, veh/h	44	7	45	13	9	19	627	2121	1052	724	1958	1000
Arrive On Green	0.03	0.03	0.00	0.01	0.01	0.00	0.05	0.68	0.68	0.01	0.63	0.63
Sat Flow, veh/h	1554	239	1585	1090	726	1585	1781	3131	1552	1781	3103	1585
Grp Volume(v), veh/h	30	0	0	10	0	0	127	358	6	4	539	24
Grp Sat Flow(s),veh/h/ln	1793	0	1585	1816	0	1585	1781	1566	1552	1781	1552	1585
Q Serve(g_s), s	1.7	0.0	0.0	0.5	0.0	0.0	2.5	4.2	0.1	0.1	7.8	0.6
Cycle Q Clear(g_c), s	1.7	0.0	0.0	0.5	0.0	0.0	2.5	4.2	0.1	0.1	7.8	0.6
Prop In Lane	0.87		1.00	0.60		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	0	45	22	0	19	627	2121	1052	724	1958	1000
V/C Ratio(X)	0.59	0.00	0.00	0.45	0.00	0.00	0.20	0.17	0.01	0.01	0.28	0.02
Avail Cap(c_a), veh/h	246	0	217	243	0	212	771	2121	1052	860	1958	1000
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	0.0	0.0	49.1	0.0	0.0	5.9	5.9	5.2	6.6	8.2	6.9
Incr Delay (d2), s/veh	4.0	0.0	0.0	5.3	0.0	0.0	0.1	0.2	0.0	0.0	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.3	0.0	0.0	0.7	1.1	0.0	0.0	2.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.1	0.0	0.0	54.4	0.0	0.0	5.9	6.0	5.2	6.6	8.6	7.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		30			10			491			567	
Approach Delay, s/veh		52.1			54.4			6.0			8.5	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	75.7		9.1	12.0	71.1		7.8				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 37		* 14	* 13	* 32		13.4				
Max Q Clear Time (g_c+I1), s	2.1	6.2		3.7	4.5	9.8		2.5				
Green Ext Time (p_c), s	0.0	1.2		0.0	0.1	1.9		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	9.0	
HCM 6th LOS	A	

Notes

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

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

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	46	36	0	6	10
Future Vol, veh/h	4	46	36	0	6	10
Conflicting Peds, #/hr	4	0	0	4	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	300	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	58	45	0	8	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	49	0	-	0	117	49
Stage 1	-	-	-	-	49	-
Stage 2	-	-	-	-	68	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1558	-	-	-	879	1020
Stage 1	-	-	-	-	973	-
Stage 2	-	-	-	-	955	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1552	-	-	-	869	1016
Mov Cap-2 Maneuver	-	-	-	-	869	-
Stage 1	-	-	-	-	966	-
Stage 2	-	-	-	-	951	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1552	-	-	-	869	1016
HCM Lane V/C Ratio	0.003	-	-	-	0.009	0.012
HCM Control Delay (s)	7.3	-	-	-	9.2	8.6
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	630	33	11	696	143	39	57	23	56	50	17
Future Volume (veh/h)	7	630	33	11	696	143	39	57	23	56	50	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1693	1870	1870	1693	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	708	26	12	782	114	44	64	0	63	56	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	14	2	2	14	2	2	2	2	2	2	2
Cap, veh/h	471	2313	1116	543	2313	1140	179	189		172	189	
Arrive On Green	0.72	0.72	0.72	0.72	0.72	0.72	0.10	0.10	0.00	0.10	0.10	0.00
Sat Flow, veh/h	621	3216	1553	723	3216	1585	1348	1870	1585	1338	1870	1585
Grp Volume(v), veh/h	8	708	26	12	782	114	44	64	0	63	56	0
Grp Sat Flow(s),veh/h/ln	621	1608	1553	723	1608	1585	1348	1870	1585	1338	1870	1585
Q Serve(g_s), s	0.4	7.1	0.4	0.5	8.1	2.0	2.8	2.9	0.0	4.1	2.5	0.0
Cycle Q Clear(g_c), s	8.6	7.1	0.4	7.7	8.1	2.0	5.3	2.9	0.0	7.0	2.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	471	2313	1116	543	2313	1140	179	189		172	189	
V/C Ratio(X)	0.02	0.31	0.02	0.02	0.34	0.10	0.25	0.34		0.37	0.30	
Avail Cap(c_a), veh/h	471	2313	1116	543	2313	1140	363	445		355	445	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.3	4.6	3.6	5.9	4.7	3.8	40.0	37.7	0.0	40.9	37.5	0.0
Incr Delay (d2), s/veh	0.1	0.3	0.0	0.1	0.4	0.2	0.3	0.4	0.0	0.5	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.5	0.1	0.1	1.7	0.4	0.9	1.3	0.0	1.4	1.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.3	4.9	3.6	6.0	5.1	4.0	40.2	38.1	0.0	41.4	37.8	0.0
LnGrp LOS	A	A	A	A	A	A	D	D		D	D	
Approach Vol, veh/h		742			908			108	A		119	A
Approach Delay, s/veh		4.9			5.0			38.9			39.7	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		72.3		17.7		72.3		17.7				
Change Period (Y+Rc), s		* 7.6		* 8.6		* 7.6		* 8.6				
Max Green Setting (Gmax), s		* 52		* 21		* 52		* 21				
Max Q Clear Time (g_c+I1), s		10.1		7.3		10.6		9.0				
Green Ext Time (p_c), s		3.2		0.1		2.7		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			9.1									
HCM 6th LOS			A									

Notes

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

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

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

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	70	780	91	93	616
Future Vol, veh/h	50	70	780	91	93	616
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	14	2	2	14
Mvmt Flow	57	80	897	105	107	708

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1466	450	0	0	1003	0
Stage 1	898	-	-	-	-	-
Stage 2	568	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	119	556	-	-	686	-
Stage 1	358	-	-	-	-	-
Stage 2	530	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	100	555	-	-	685	-
Mov Cap-2 Maneuver	226	-	-	-	-	-
Stage 1	358	-	-	-	-	-
Stage 2	447	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.3	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	226	555	685	-
HCM Lane V/C Ratio	-	-	0.254	0.145	0.156	-
HCM Control Delay (s)	-	-	26.3	12.6	11.2	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	1	0.5	0.6	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	10	293	8	1	8	241	881	5	7	642	50
Future Volume (veh/h)	92	10	293	8	1	8	241	881	5	7	642	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1693	1870	1870	1693	1870
Adj Flow Rate, veh/h	101	11	1	9	1	0	265	968	3	8	705	23
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	14	2	2	14	2
Cap, veh/h	128	14	126	20	2	19	509	1899	935	338	1631	803
Arrive On Green	0.08	0.08	0.08	0.01	0.01	0.00	0.09	0.59	0.59	0.01	0.51	0.51
Sat Flow, veh/h	1614	176	1585	1611	179	1585	1781	3216	1584	1781	3216	1583
Grp Volume(v), veh/h	112	0	1	10	0	0	265	968	3	8	705	23
Grp Sat Flow(s),veh/h/ln	1790	0	1585	1790	0	1585	1781	1608	1584	1781	1608	1583
Q Serve(g_s), s	5.5	0.0	0.1	0.5	0.0	0.0	6.0	15.9	0.1	0.2	12.5	0.7
Cycle Q Clear(g_c), s	5.5	0.0	0.1	0.5	0.0	0.0	6.0	15.9	0.1	0.2	12.5	0.7
Prop In Lane	0.90		1.00	0.90		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	142	0	126	22	0	19	509	1899	935	338	1631	803
V/C Ratio(X)	0.79	0.00	0.01	0.45	0.00	0.00	0.52	0.51	0.00	0.02	0.43	0.03
Avail Cap(c_a), veh/h	193	0	171	187	0	166	603	1899	935	482	1631	803
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	0.0	38.2	44.1	0.0	0.0	9.5	10.8	7.6	10.9	14.0	11.1
Incr Delay (d2), s/veh	9.9	0.0	0.0	5.3	0.0	0.0	0.3	1.0	0.0	0.0	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	0.3	0.0	0.0	1.7	4.6	0.0	0.1	3.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	0.0	38.2	49.5	0.0	0.0	9.8	11.8	7.6	10.9	14.8	11.2
LnGrp LOS	D	A	D	D	A	A	A	B	A	B	B	B
Approach Vol, veh/h		113			10			1236			736	
Approach Delay, s/veh		50.5			49.5			11.3			14.7	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	61.2		13.4	15.2	53.7		7.7				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 35		* 9.7	* 13	* 30		9.4				
Max Q Clear Time (g_c+I1), s	2.2	17.9		7.5	8.0	14.5		2.5				
Green Ext Time (p_c), s	0.0	3.5		0.0	0.1	2.3		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		14.8
HCM 6th LOS		B

Notes

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

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

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	104	99	13	17	12
Future Vol, veh/h	23	104	99	13	17	12
Conflicting Peds, #/hr	4	0	0	4	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	300	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	113	108	14	18	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	126	0	-	0	275	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	163	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1460	-	-	-	715	941
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	866	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1454	-	-	-	697	937
Mov Cap-2 Maneuver	-	-	-	-	697	-
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	863	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1454	-	-	-	697	937
HCM Lane V/C Ratio	0.017	-	-	-	0.027	0.014
HCM Control Delay (s)	7.5	-	-	-	10.3	8.9
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	447	12	33	445	66	9	18	23	73	28	19
Future Volume (veh/h)	6	447	12	33	445	66	9	18	23	73	28	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1633	1870	1870	1648	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	514	7	38	511	39	10	21	0	84	32	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	18	2	2	17	2	2	2	2	2	2	2
Cap, veh/h	572	1801	901	582	1817	920	254	179		262	179	
Arrive On Green	0.58	0.58	0.58	0.58	0.58	0.58	0.10	0.10	0.00	0.10	0.10	0.00
Sat Flow, veh/h	858	3103	1552	881	3131	1585	1373	1870	1585	1387	1870	1585
Grp Volume(v), veh/h	7	514	7	38	511	39	10	21	0	84	32	0
Grp Sat Flow(s),veh/h/ln	858	1552	1552	881	1566	1585	1373	1870	1585	1387	1870	1585
Q Serve(g_s), s	0.2	4.2	0.1	1.1	4.1	0.5	0.3	0.5	0.0	2.9	0.8	0.0
Cycle Q Clear(g_c), s	4.3	4.2	0.1	5.3	4.1	0.5	1.1	0.5	0.0	3.5	0.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	572	1801	901	582	1817	920	254	179		262	179	
V/C Ratio(X)	0.01	0.29	0.01	0.07	0.28	0.04	0.04	0.12		0.32	0.18	
Avail Cap(c_a), veh/h	572	1801	901	582	1817	920	381	352		390	352	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.3	5.3	4.4	6.6	5.3	4.5	21.3	20.7	0.0	22.3	20.8	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.2	0.4	0.1	0.0	0.1	0.0	0.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.0	0.2	0.7	0.1	0.1	0.2	0.0	0.9	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.4	5.7	4.4	6.8	5.6	4.6	21.3	20.8	0.0	22.5	21.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	C		C	C	
Approach Vol, veh/h		528			588			31	A		116	A
Approach Delay, s/veh		5.7			5.7			21.0			22.1	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.6		13.4		36.6		13.4				
Change Period (Y+Rc), s		* 7.6		* 8.6		* 7.6		* 8.6				
Max Green Setting (Gmax), s		* 24		* 9.4		* 24		* 9.4				
Max Q Clear Time (g_c+I1), s		7.3		3.1		6.3		5.5				
Green Ext Time (p_c), s		1.8		0.0		1.7		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	7.5	
HCM 6th LOS	A	

Notes

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

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

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

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	48	94	450	46	59	484
Future Vol, veh/h	48	94	450	46	59	484
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	17	2	2	18
Mvmt Flow	53	104	500	51	66	538

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	902	251	0	0	552	0
Stage 1	501	-	-	-	-	-
Stage 2	401	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	277	749	-	-	1014	-
Stage 1	574	-	-	-	-	-
Stage 2	645	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	259	748	-	-	1013	-
Mov Cap-2 Maneuver	386	-	-	-	-	-
Stage 1	573	-	-	-	-	-
Stage 2	603	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	386	748	1013	-
HCM Lane V/C Ratio	-	-	0.138	0.14	0.065	-
HCM Control Delay (s)	-	-	15.8	10.6	8.8	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.5	0.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	3	126	5	3	6	108	406	9	3	632	107
Future Volume (veh/h)	60	3	126	5	3	6	108	406	9	3	632	107
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1648	1870	1870	1633	1870
Adj Flow Rate, veh/h	71	4	0	6	4	0	127	478	6	4	744	59
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	17	2	2	18	2
Cap, veh/h	92	5	86	13	9	19	484	2039	1011	618	1877	959
Arrive On Green	0.05	0.05	0.00	0.01	0.01	0.00	0.05	0.65	0.65	0.01	0.60	0.60
Sat Flow, veh/h	1691	95	1585	1090	726	1585	1781	3131	1552	1781	3103	1585
Grp Volume(v), veh/h	75	0	0	10	0	0	127	478	6	4	744	59
Grp Sat Flow(s),veh/h/ln	1786	0	1585	1816	0	1585	1781	1566	1552	1781	1552	1585
Q Serve(g_s), s	4.1	0.0	0.0	0.5	0.0	0.0	2.7	6.3	0.1	0.1	12.5	1.5
Cycle Q Clear(g_c), s	4.1	0.0	0.0	0.5	0.0	0.0	2.7	6.3	0.1	0.1	12.5	1.5
Prop In Lane	0.95		1.00	0.60		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	97	0	86	22	0	19	484	2039	1011	618	1877	959
V/C Ratio(X)	0.77	0.00	0.00	0.45	0.00	0.00	0.26	0.23	0.01	0.01	0.40	0.06
Avail Cap(c_a), veh/h	245	0	217	243	0	212	627	2039	1011	754	1877	959
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.7	0.0	0.0	49.1	0.0	0.0	7.4	7.2	6.1	7.6	10.3	8.1
Incr Delay (d2), s/veh	4.8	0.0	0.0	5.3	0.0	0.0	0.1	0.3	0.0	0.0	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0	0.3	0.0	0.0	0.8	1.7	0.0	0.0	3.6	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.5	0.0	0.0	54.4	0.0	0.0	7.5	7.4	6.1	7.6	10.9	8.2
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	B	A
Approach Vol, veh/h		75			10			611			807	
Approach Delay, s/veh		51.5			54.4			7.5			10.7	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	73.1		11.7	12.0	68.5		7.8				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 37		* 14	* 13	* 32		13.4				
Max Q Clear Time (g_c+I1), s	2.1	8.3		6.1	4.7	14.5		2.5				
Green Ext Time (p_c), s	0.0	1.7		0.1	0.1	2.6		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		11.7	
HCM 6th LOS		B	

Notes

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

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

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	49	58	12	40	0	52	0	21	6	0	10
Future Vol, veh/h	4	49	58	12	40	0	52	0	21	6	0	10
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	300	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	92	92	80	80	92	92	92	80	92	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	61	63	13	50	0	57	0	23	8	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	124	0	0	186	183	93	194	214	54
Stage 1	-	-	-	-	-	-	103	103	-	80	80	-
Stage 2	-	-	-	-	-	-	83	80	-	114	134	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1551	-	-	1463	-	-	775	711	964	765	684	1013
Stage 1	-	-	-	-	-	-	903	810	-	929	828	-
Stage 2	-	-	-	-	-	-	925	828	-	891	785	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1545	-	-	1463	-	-	758	700	964	737	673	1009
Mov Cap-2 Maneuver	-	-	-	-	-	-	758	700	-	737	673	-
Stage 1	-	-	-	-	-	-	900	808	-	922	817	-
Stage 2	-	-	-	-	-	-	905	817	-	867	783	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1.5	9.9	9.1
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	808	1545	-	-	1463	-	-	737	1009
HCM Lane V/C Ratio	0.098	0.003	-	-	0.009	-	-	0.01	0.012
HCM Control Delay (s)	9.9	7.3	-	-	7.5	0	-	9.9	8.6
HCM Lane LOS	A	A	-	-	A	A	-	A	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0	0

Intersection	
Int Delay, s/veh	4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	179	87	409	70	51	481
Future Vol, veh/h	179	87	409	70	51	481
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	17	2	2	18
Mvmt Flow	195	95	445	76	55	523

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	817	223	0	0	521	0
Stage 1	445	-	-	-	-	-
Stage 2	372	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	314	780	-	-	1041	-
Stage 1	613	-	-	-	-	-
Stage 2	667	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	297	780	-	-	1041	-
Mov Cap-2 Maneuver	420	-	-	-	-	-
Stage 1	613	-	-	-	-	-
Stage 2	632	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.4	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	420	780	1041	-
HCM Lane V/C Ratio	-	-	0.463	0.121	0.053	-
HCM Control Delay (s)	-	-	20.8	10.3	8.7	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	2.4	0.4	0.2	-

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	48	44	435	35	26	634
Future Vol, veh/h	48	44	435	35	26	634
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	17	2	2	18
Mvmt Flow	52	48	473	38	28	689

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	874	237	0	0	511	0
Stage 1	473	-	-	-	-	-
Stage 2	401	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	289	764	-	-	1050	-
Stage 1	593	-	-	-	-	-
Stage 2	645	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	281	764	-	-	1050	-
Mov Cap-2 Maneuver	406	-	-	-	-	-
Stage 1	593	-	-	-	-	-
Stage 2	628	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	523	1050	-
HCM Lane V/C Ratio	-	-	0.191	0.027	-
HCM Control Delay (s)	-	-	13.5	8.5	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	74	2	1	48	4	1
Future Vol, veh/h	74	2	1	48	4	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	80	2	1	52	4	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	82	0	135	81
Stage 1	-	-	-	-	81	-
Stage 2	-	-	-	-	54	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1515	-	859	979
Stage 1	-	-	-	-	942	-
Stage 2	-	-	-	-	969	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1515	-	858	979
Mov Cap-2 Maneuver	-	-	-	-	858	-
Stage 1	-	-	-	-	942	-
Stage 2	-	-	-	-	968	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	880	-	-	1515	-
HCM Lane V/C Ratio	0.006	-	-	0.001	-
HCM Control Delay (s)	9.1	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	785	33	30	807	162	39	57	49	82	50	17
Future Volume (veh/h)	7	785	33	30	807	162	39	57	49	82	50	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1693	1870	1870	1693	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	882	26	34	907	125	44	64	0	92	56	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	14	2	2	14	2	2	2	2	2	2	2
Cap, veh/h	397	2246	1084	439	2246	1107	207	227		201	227	
Arrive On Green	0.70	0.70	0.70	0.70	0.70	0.70	0.12	0.12	0.00	0.12	0.12	0.00
Sat Flow, veh/h	547	3216	1553	614	3216	1585	1348	1870	1585	1338	1870	1585
Grp Volume(v), veh/h	8	882	26	34	907	125	44	64	0	92	56	0
Grp Sat Flow(s),veh/h/ln	547	1608	1553	614	1608	1585	1348	1870	1585	1338	1870	1585
Q Serve(g_s), s	0.6	10.3	0.5	2.2	10.7	2.3	2.8	2.8	0.0	6.0	2.4	0.0
Cycle Q Clear(g_c), s	11.2	10.3	0.5	12.4	10.7	2.3	5.2	2.8	0.0	8.8	2.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	397	2246	1084	439	2246	1107	207	227		201	227	
V/C Ratio(X)	0.02	0.39	0.02	0.08	0.40	0.11	0.21	0.28		0.46	0.25	
Avail Cap(c_a), veh/h	397	2246	1084	439	2246	1107	364	445		356	445	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	8.1	5.6	4.2	8.2	5.7	4.4	38.1	36.0	0.0	40.0	35.8	0.0
Incr Delay (d2), s/veh	0.1	0.5	0.0	0.3	0.5	0.2	0.2	0.2	0.0	0.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.3	0.1	0.3	2.4	0.5	0.9	1.3	0.0	2.0	1.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.2	6.2	4.2	8.6	6.2	4.6	38.3	36.2	0.0	40.6	36.0	0.0
LnGrp LOS	A	A	A	A	A	A	D	D		D	D	
Approach Vol, veh/h		916			1066			108	A		148	A
Approach Delay, s/veh		6.1			6.1			37.1			38.8	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	70.5	19.5	70.5	19.5
Change Period (Y+Rc), s	* 7.6	* 8.6	* 7.6	* 8.6
Max Green Setting (Gmax), s	* 52	* 21	* 52	* 21
Max Q Clear Time (g_c+I1), s	14.4	7.2	13.2	10.8
Green Ext Time (p_c), s	4.0	0.1	3.6	0.1

Intersection Summary	
HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A

Notes

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

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

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

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	107	892	162	145	771
Future Vol, veh/h	60	107	892	162	145	771
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	14	2	2	14
Mvmt Flow	69	123	1025	186	167	886

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1803	514	0	0	1212	0
Stage 1	1026	-	-	-	-	-
Stage 2	777	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	71	505	-	-	571	-
Stage 1	307	-	-	-	-	-
Stage 2	414	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 50	505	-	-	570	-
Mov Cap-2 Maneuver	160	-	-	-	-	-
Stage 1	307	-	-	-	-	-
Stage 2	293	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.9	0	2.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	160	505	570	-
HCM Lane V/C Ratio	-	-	0.431	0.244	0.292	-
HCM Control Delay (s)	-	-	43.5	14.4	13.9	-
HCM Lane LOS	-	-	E	B	B	-
HCM 95th %tile Q(veh)	-	-	1.9	0.9	1.2	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	10	293	8	1	8	241	1085	5	7	788	106
Future Volume (veh/h)	169	10	293	8	1	8	241	1085	5	7	788	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1693	1870	1870	1693	1870
Adj Flow Rate, veh/h	186	11	7	9	1	0	265	1192	3	8	866	45
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	14	2	2	14	2
Cap, veh/h	182	11	171	20	2	19	421	1808	890	240	1524	750
Arrive On Green	0.11	0.11	0.11	0.01	0.01	0.00	0.10	0.56	0.56	0.01	0.47	0.47
Sat Flow, veh/h	1686	100	1585	1611	179	1585	1781	3216	1584	1781	3216	1583
Grp Volume(v), veh/h	197	0	7	10	0	0	265	1192	3	8	866	45
Grp Sat Flow(s),veh/h/ln	1786	0	1585	1790	0	1585	1781	1608	1584	1781	1608	1583
Q Serve(g_s), s	9.7	0.0	0.4	0.5	0.0	0.0	6.4	23.2	0.1	0.2	17.5	1.4
Cycle Q Clear(g_c), s	9.7	0.0	0.4	0.5	0.0	0.0	6.4	23.2	0.1	0.2	17.5	1.4
Prop In Lane	0.94		1.00	0.90		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	192	0	171	22	0	19	421	1808	890	240	1524	750
V/C Ratio(X)	1.02	0.00	0.04	0.45	0.00	0.00	0.63	0.66	0.00	0.03	0.57	0.06
Avail Cap(c_a), veh/h	192	0	171	187	0	166	507	1808	890	385	1524	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	0.0	36.0	44.1	0.0	0.0	12.5	13.7	8.6	13.4	17.1	12.8
Incr Delay (d2), s/veh	71.1	0.0	0.0	5.3	0.0	0.0	0.9	1.9	0.0	0.0	1.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	0.0	0.1	0.3	0.0	0.0	2.0	7.1	0.0	0.1	5.7	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	111.2	0.0	36.0	49.5	0.0	0.0	13.4	15.6	8.7	13.4	18.6	13.0
LnGrp LOS	F	A	D	D	A	A	B	B	A	B	B	B
Approach Vol, veh/h		204			10			1460			919	
Approach Delay, s/veh		108.7			49.5			15.2			18.3	
Approach LOS		F			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	58.6		16.0	15.7	50.6		7.7				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 35		* 9.7	* 13	* 30		9.4				
Max Q Clear Time (g_c+I1), s	2.2	25.2		11.7	8.4	19.5		2.5				
Green Ext Time (p_c), s	0.0	3.5		0.0	0.1	2.6		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		23.8	
HCM 6th LOS		C	

Notes

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

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

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	109	118	25	103	13	43	0	18	17	0	12
Future Vol, veh/h	23	109	118	25	103	13	43	0	18	17	0	12
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	300	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	118	128	27	112	14	47	0	20	18	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	130	0	0	246	0	0	412	416	182	412	466	116
Stage 1	-	-	-	-	-	-	232	232	-	170	170	-
Stage 2	-	-	-	-	-	-	180	184	-	242	296	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1455	-	-	1320	-	-	550	527	861	550	494	936
Stage 1	-	-	-	-	-	-	771	713	-	832	758	-
Stage 2	-	-	-	-	-	-	822	747	-	762	668	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1449	-	-	1320	-	-	526	505	861	520	473	932
Mov Cap-2 Maneuver	-	-	-	-	-	-	526	505	-	520	473	-
Stage 1	-	-	-	-	-	-	758	701	-	815	738	-
Stage 2	-	-	-	-	-	-	793	728	-	732	657	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	1.4	11.8	10.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	594	1449	-	-	1320	-	-	520	932
HCM Lane V/C Ratio	0.112	0.017	-	-	0.021	-	-	0.036	0.014
HCM Control Delay (s)	11.8	7.5	-	-	7.8	0	-	12.2	8.9
HCM Lane LOS	B	A	-	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-	-	0.1	0

Intersection	
Int Delay, s/veh	7.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	152	75	979	140	104	727
Future Vol, veh/h	152	75	979	140	104	727
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	14	2	2	14
Mvmt Flow	165	82	1064	152	113	790

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1685	532	0	0	1216	0
Stage 1	1064	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	~ 85	492	-	-	569	-
Stage 1	293	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 68	492	-	-	569	-
Mov Cap-2 Maneuver	184	-	-	-	-	-
Stage 1	293	-	-	-	-	-
Stage 2	399	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	67.1	0	1.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	184	492	569	-
HCM Lane V/C Ratio	-	-	0.898	0.166	0.199	-
HCM Control Delay (s)	-	-	93.4	13.8	12.9	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	6.8	0.6	0.7	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	37	1082	70	52	827
Future Vol, veh/h	41	37	1082	70	52	827
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	14	2	2	14
Mvmt Flow	45	40	1176	76	57	899

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1740	588	0	0	1252	0
Stage 1	1176	-	-	-	-	-
Stage 2	564	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	78	452	-	-	552	-
Stage 1	255	-	-	-	-	-
Stage 2	533	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	70	452	-	-	552	-
Mov Cap-2 Maneuver	180	-	-	-	-	-
Stage 1	255	-	-	-	-	-
Stage 2	478	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.4	0	0.7
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	252	552	-
HCM Lane V/C Ratio	-	-	0.336	0.102	-
HCM Control Delay (s)	-	-	26.4	12.3	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	1.4	0.3	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	139	5	1	137	4	1
Future Vol, veh/h	139	5	1	137	4	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	151	5	1	149	4	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	156	0	305	154
Stage 1	-	-	-	-	154	-
Stage 2	-	-	-	-	151	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1424	-	687	892
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	877	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1424	-	686	892
Mov Cap-2 Maneuver	-	-	-	-	686	-
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	876	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	719	-	-	1424	-
HCM Lane V/C Ratio	0.008	-	-	0.001	-
HCM Control Delay (s)	10	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	447	12	33	445	66	9	18	23	73	28	19
Future Volume (veh/h)	6	447	12	33	445	66	9	18	23	73	28	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1633	1870	1870	1648	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	514	7	38	511	39	10	21	0	84	32	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	18	2	2	17	2	2	2	2	2	2	2
Cap, veh/h	642	1801	901	582	1817	920	254	179		262	179	
Arrive On Green	0.58	0.58	0.58	1.00	1.00	1.00	0.10	0.10	0.00	0.10	0.10	0.00
Sat Flow, veh/h	858	3103	1552	881	3131	1585	1373	1870	1585	1387	1870	1585
Grp Volume(v), veh/h	7	514	7	38	511	39	10	21	0	84	32	0
Grp Sat Flow(s),veh/h/ln	858	1552	1552	881	1566	1585	1373	1870	1585	1387	1870	1585
Q Serve(g_s), s	0.2	4.2	0.1	0.3	0.0	0.0	0.3	0.5	0.0	2.9	0.8	0.0
Cycle Q Clear(g_c), s	0.2	4.2	0.1	4.5	0.0	0.0	1.1	0.5	0.0	3.5	0.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	642	1801	901	582	1817	920	254	179		262	179	
V/C Ratio(X)	0.01	0.29	0.01	0.07	0.28	0.04	0.04	0.12		0.32	0.18	
Avail Cap(c_a), veh/h	642	1801	901	582	1817	920	381	352		390	352	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	4.4	5.3	4.4	0.3	0.0	0.0	21.3	20.7	0.0	22.3	20.8	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.2	0.4	0.1	0.0	0.1	0.0	0.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.0	0.0	0.1	0.0	0.1	0.2	0.0	0.9	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.5	5.7	4.4	0.5	0.4	0.1	21.3	20.8	0.0	22.5	21.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	C		C	C	
Approach Vol, veh/h		528			588			31	A		116	A
Approach Delay, s/veh		5.6			0.4			21.0			22.1	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.6		13.4		36.6		13.4				
Change Period (Y+Rc), s		* 7.6		* 8.6		* 7.6		* 8.6				
Max Green Setting (Gmax), s		* 24		* 9.4		* 24		* 9.4				
Max Q Clear Time (g_c+I1), s		6.5		3.1		6.2		5.5				
Green Ext Time (p_c), s		1.8		0.0		1.7		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		5.1
HCM 6th LOS		A

Notes

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

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

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

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	48	94	450	46	59	484
Future Vol, veh/h	48	94	450	46	59	484
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	17	2	2	18
Mvmt Flow	53	104	500	51	66	538

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	902	251	0	0	552	0
Stage 1	501	-	-	-	-	-
Stage 2	401	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	277	749	-	-	1014	-
Stage 1	574	-	-	-	-	-
Stage 2	645	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	259	748	-	-	1013	-
Mov Cap-2 Maneuver	386	-	-	-	-	-
Stage 1	573	-	-	-	-	-
Stage 2	603	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	386	748	1013	-
HCM Lane V/C Ratio	-	-	0.138	0.14	0.065	-
HCM Control Delay (s)	-	-	15.8	10.6	8.8	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.5	0.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	3	126	5	3	6	108	406	9	3	632	107
Future Volume (veh/h)	60	3	126	5	3	6	108	406	9	3	632	107
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1648	1870	1870	1633	1870
Adj Flow Rate, veh/h	71	4	0	6	4	0	127	478	6	4	744	59
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	17	2	2	18	2
Cap, veh/h	92	5	86	13	9	19	484	2039	1011	618	1877	959
Arrive On Green	0.05	0.05	0.00	0.01	0.01	0.00	0.05	0.65	0.65	0.01	0.60	0.60
Sat Flow, veh/h	1691	95	1585	1090	726	1585	1781	3131	1552	1781	3103	1585
Grp Volume(v), veh/h	75	0	0	10	0	0	127	478	6	4	744	59
Grp Sat Flow(s),veh/h/ln	1786	0	1585	1816	0	1585	1781	1566	1552	1781	1552	1585
Q Serve(g_s), s	4.1	0.0	0.0	0.5	0.0	0.0	2.7	6.3	0.1	0.1	12.5	1.5
Cycle Q Clear(g_c), s	4.1	0.0	0.0	0.5	0.0	0.0	2.7	6.3	0.1	0.1	12.5	1.5
Prop In Lane	0.95		1.00	0.60		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	97	0	86	22	0	19	484	2039	1011	618	1877	959
V/C Ratio(X)	0.77	0.00	0.00	0.45	0.00	0.00	0.26	0.23	0.01	0.01	0.40	0.06
Avail Cap(c_a), veh/h	245	0	217	243	0	212	627	2039	1011	754	1877	959
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.7	0.0	0.0	49.1	0.0	0.0	7.4	7.2	6.1	7.6	10.3	8.1
Incr Delay (d2), s/veh	4.8	0.0	0.0	5.3	0.0	0.0	0.1	0.3	0.0	0.0	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0	0.3	0.0	0.0	0.8	1.7	0.0	0.0	3.6	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.5	0.0	0.0	54.4	0.0	0.0	7.5	7.4	6.1	7.6	10.9	8.2
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	B	A
Approach Vol, veh/h		75			10			611			807	
Approach Delay, s/veh		51.5			54.4			7.5			10.7	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	73.1		11.7	12.0	68.5		7.8				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 37		* 14	* 13	* 32		13.4				
Max Q Clear Time (g_c+I1), s	2.1	8.3		6.1	4.7	14.5		2.5				
Green Ext Time (p_c), s	0.0	1.7		0.1	0.1	2.6		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			11.7									
HCM 6th LOS			B									

Notes

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

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

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	49	58	12	40	0	52	0	21	6	0	10
Future Vol, veh/h	4	49	58	12	40	0	52	0	21	6	0	10
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	300	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	92	92	80	80	92	92	92	80	92	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	61	63	13	50	0	57	0	23	8	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	124	0	0	186	183	93	194	214	54
Stage 1	-	-	-	-	-	-	103	103	-	80	80	-
Stage 2	-	-	-	-	-	-	83	80	-	114	134	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1551	-	-	1463	-	-	775	711	964	765	684	1013
Stage 1	-	-	-	-	-	-	903	810	-	929	828	-
Stage 2	-	-	-	-	-	-	925	828	-	891	785	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1545	-	-	1463	-	-	758	700	964	737	673	1009
Mov Cap-2 Maneuver	-	-	-	-	-	-	758	700	-	737	673	-
Stage 1	-	-	-	-	-	-	900	808	-	922	817	-
Stage 2	-	-	-	-	-	-	905	817	-	867	783	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1.5	9.9	9.1
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	808	1545	-	-	1463	-	-	737	1009
HCM Lane V/C Ratio	0.098	0.003	-	-	0.009	-	-	0.01	0.012
HCM Control Delay (s)	9.9	7.3	-	-	7.5	0	-	9.9	8.6
HCM Lane LOS	A	A	-	-	A	A	-	A	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0	0



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	179	87	409	70	51	481
Future Volume (veh/h)	179	87	409	70	51	481
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1648	1870	1870	1633
Adj Flow Rate, veh/h	195	95	445	76	55	523
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	17	2	2	18
Cap, veh/h	241	214	2260	1144	667	2240
Arrive On Green	0.14	0.14	0.72	0.72	1.00	1.00
Sat Flow, veh/h	1781	1585	3214	1585	881	3185
Grp Volume(v), veh/h	195	95	445	76	55	523
Grp Sat Flow(s),veh/h/ln	1781	1585	1566	1585	881	1552
Q Serve(g_s), s	10.6	5.5	4.6	1.4	0.4	0.0
Cycle Q Clear(g_c), s	10.6	5.5	4.6	1.4	5.0	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	241	214	2260	1144	667	2240
V/C Ratio(X)	0.81	0.44	0.20	0.07	0.08	0.23
Avail Cap(c_a), veh/h	761	677	2260	1144	667	2240
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.0	39.8	4.5	4.1	0.2	0.0
Incr Delay (d2), s/veh	6.4	1.4	0.2	0.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	2.2	1.0	0.3	0.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.4	41.2	4.7	4.2	0.4	0.2
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	290		521			578
Approach Delay, s/veh	46.1		4.6			0.3
Approach LOS	D		A			A

Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		80.2			80.2	19.8
Change Period (Y+Rc), s		* 8			* 8	6.3
Max Green Setting (Gmax), s		* 43			* 43	42.7
Max Q Clear Time (g_c+I1), s		6.6			7.0	12.6
Green Ext Time (p_c), s		2.9			3.6	0.9

Intersection Summary		
HCM 6th Ctrl Delay		11.5
HCM 6th LOS		B

Notes

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

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	48	44	435	35	26	634
Future Vol, veh/h	48	44	435	35	26	634
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	17	2	2	18
Mvmt Flow	52	48	473	38	28	689

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	874	237	0	0	511	0
Stage 1	473	-	-	-	-	-
Stage 2	401	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	289	764	-	-	1050	-
Stage 1	593	-	-	-	-	-
Stage 2	645	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	281	764	-	-	1050	-
Mov Cap-2 Maneuver	406	-	-	-	-	-
Stage 1	593	-	-	-	-	-
Stage 2	628	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	523	1050	-
HCM Lane V/C Ratio	-	-	0.191	0.027	-
HCM Control Delay (s)	-	-	13.5	8.5	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	74	2	1	48	4	1
Future Vol, veh/h	74	2	1	48	4	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	80	2	1	52	4	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	82	0	135	81
Stage 1	-	-	-	-	81	-
Stage 2	-	-	-	-	54	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1515	-	859	979
Stage 1	-	-	-	-	942	-
Stage 2	-	-	-	-	969	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1515	-	858	979
Mov Cap-2 Maneuver	-	-	-	-	858	-
Stage 1	-	-	-	-	942	-
Stage 2	-	-	-	-	968	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	880	-	-	1515	-
HCM Lane V/C Ratio	0.006	-	-	0.001	-
HCM Control Delay (s)	9.1	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	785	33	30	807	162	39	57	49	82	50	17
Future Volume (veh/h)	7	785	33	30	807	162	39	57	49	82	50	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1693	1870	1870	1693	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	882	26	34	907	125	44	64	0	92	56	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	14	2	2	14	2	2	2	2	2	2	2
Cap, veh/h	462	2246	1084	439	2246	1107	207	227		201	227	
Arrive On Green	0.70	0.70	0.70	1.00	1.00	1.00	0.12	0.12	0.00	0.12	0.12	0.00
Sat Flow, veh/h	547	3216	1553	614	3216	1585	1348	1870	1585	1338	1870	1585
Grp Volume(v), veh/h	8	882	26	34	907	125	44	64	0	92	56	0
Grp Sat Flow(s),veh/h/ln	547	1608	1553	614	1608	1585	1348	1870	1585	1338	1870	1585
Q Serve(g_s), s	0.4	10.3	0.5	0.9	0.0	0.0	2.8	2.8	0.0	6.0	2.4	0.0
Cycle Q Clear(g_c), s	0.4	10.3	0.5	11.1	0.0	0.0	5.2	2.8	0.0	8.8	2.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	462	2246	1084	439	2246	1107	207	227		201	227	
V/C Ratio(X)	0.02	0.39	0.02	0.08	0.40	0.11	0.21	0.28		0.46	0.25	
Avail Cap(c_a), veh/h	462	2246	1084	439	2246	1107	364	445		356	445	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	4.2	5.6	4.2	0.9	0.0	0.0	38.1	36.0	0.0	40.0	35.8	0.0
Incr Delay (d2), s/veh	0.1	0.5	0.0	0.3	0.5	0.2	0.2	0.2	0.0	0.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.3	0.1	0.0	0.2	0.1	0.9	1.3	0.0	2.0	1.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.2	6.2	4.2	1.3	0.5	0.2	38.3	36.2	0.0	40.6	36.0	0.0
LnGrp LOS	A	A	A	A	A	A	D	D		D	D	
Approach Vol, veh/h		916			1066			108	A		148	A
Approach Delay, s/veh		6.1			0.5			37.1			38.8	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		70.5		19.5		70.5		19.5				
Change Period (Y+Rc), s		* 7.6		* 8.6		* 7.6		* 8.6				
Max Green Setting (Gmax), s		* 52		* 21		* 52		* 21				
Max Q Clear Time (g_c+I1), s		13.1		7.2		12.3		10.8				
Green Ext Time (p_c), s		4.0		0.1		3.6		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		7.1
HCM 6th LOS		A

Notes

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

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

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

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	107	892	162	145	771
Future Vol, veh/h	60	107	892	162	145	771
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	14	2	2	14
Mvmt Flow	69	123	1025	186	167	886

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1803	514	0	0	1212	0
Stage 1	1026	-	-	-	-	-
Stage 2	777	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	71	505	-	-	571	-
Stage 1	307	-	-	-	-	-
Stage 2	414	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 50	505	-	-	570	-
Mov Cap-2 Maneuver	160	-	-	-	-	-
Stage 1	307	-	-	-	-	-
Stage 2	293	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.9	0	2.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	160	505	570	-
HCM Lane V/C Ratio	-	-	0.431	0.244	0.292	-
HCM Control Delay (s)	-	-	43.5	14.4	13.9	-
HCM Lane LOS	-	-	E	B	B	-
HCM 95th %tile Q(veh)	-	-	1.9	0.9	1.2	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	10	293	8	1	8	241	1085	5	7	788	106
Future Volume (veh/h)	169	10	293	8	1	8	241	1085	5	7	788	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1693	1870	1870	1693	1870
Adj Flow Rate, veh/h	186	11	7	9	1	0	265	1192	3	8	866	45
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	14	2	2	14	2
Cap, veh/h	182	11	171	20	2	19	421	1808	890	240	1524	750
Arrive On Green	0.11	0.11	0.11	0.01	0.01	0.00	0.10	0.56	0.56	0.01	0.47	0.47
Sat Flow, veh/h	1686	100	1585	1611	179	1585	1781	3216	1584	1781	3216	1583
Grp Volume(v), veh/h	197	0	7	10	0	0	265	1192	3	8	866	45
Grp Sat Flow(s),veh/h/ln	1786	0	1585	1790	0	1585	1781	1608	1584	1781	1608	1583
Q Serve(g_s), s	9.7	0.0	0.4	0.5	0.0	0.0	6.4	23.2	0.1	0.2	17.5	1.4
Cycle Q Clear(g_c), s	9.7	0.0	0.4	0.5	0.0	0.0	6.4	23.2	0.1	0.2	17.5	1.4
Prop In Lane	0.94		1.00	0.90		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	192	0	171	22	0	19	421	1808	890	240	1524	750
V/C Ratio(X)	1.02	0.00	0.04	0.45	0.00	0.00	0.63	0.66	0.00	0.03	0.57	0.06
Avail Cap(c_a), veh/h	192	0	171	187	0	166	507	1808	890	385	1524	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	0.0	36.0	44.1	0.0	0.0	12.5	13.7	8.6	13.4	17.1	12.8
Incr Delay (d2), s/veh	71.1	0.0	0.0	5.3	0.0	0.0	0.9	1.9	0.0	0.0	1.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	0.0	0.1	0.3	0.0	0.0	2.0	7.1	0.0	0.1	5.7	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	111.2	0.0	36.0	49.5	0.0	0.0	13.4	15.6	8.7	13.4	18.6	13.0
LnGrp LOS	F	A	D	D	A	A	B	B	A	B	B	B
Approach Vol, veh/h		204			10			1460			919	
Approach Delay, s/veh		108.7			49.5			15.2			18.3	
Approach LOS		F			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	58.6		16.0	15.7	50.6		7.7				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 35		* 9.7	* 13	* 30		9.4				
Max Q Clear Time (g_c+I1), s	2.2	25.2		11.7	8.4	19.5		2.5				
Green Ext Time (p_c), s	0.0	3.5		0.0	0.1	2.6		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		23.8	
HCM 6th LOS		C	

Notes

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

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

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	109	118	25	103	13	43	0	18	17	0	12
Future Vol, veh/h	23	109	118	25	103	13	43	0	18	17	0	12
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	300	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	118	128	27	112	14	47	0	20	18	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	130	0	0	246	0	0	412	416	182	412	466	116
Stage 1	-	-	-	-	-	-	232	232	-	170	170	-
Stage 2	-	-	-	-	-	-	180	184	-	242	296	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1455	-	-	1320	-	-	550	527	861	550	494	936
Stage 1	-	-	-	-	-	-	771	713	-	832	758	-
Stage 2	-	-	-	-	-	-	822	747	-	762	668	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1449	-	-	1320	-	-	526	505	861	520	473	932
Mov Cap-2 Maneuver	-	-	-	-	-	-	526	505	-	520	473	-
Stage 1	-	-	-	-	-	-	758	701	-	815	738	-
Stage 2	-	-	-	-	-	-	793	728	-	732	657	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	1.4	11.8	10.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	594	1449	-	-	1320	-	-	520	932
HCM Lane V/C Ratio	0.112	0.017	-	-	0.021	-	-	0.036	0.014
HCM Control Delay (s)	11.8	7.5	-	-	7.8	0	-	12.2	8.9
HCM Lane LOS	B	A	-	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-	-	0.1	0



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	152	75	979	140	104	727
Future Volume (veh/h)	152	75	979	140	104	727
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1693	1870	1870	1693
Adj Flow Rate, veh/h	165	82	1064	152	113	790
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	14	2	2	14
Cap, veh/h	213	190	2320	1143	348	2320
Arrive On Green	0.12	0.12	0.72	0.72	1.00	1.00
Sat Flow, veh/h	1781	1585	3300	1585	459	3300
Grp Volume(v), veh/h	165	82	1064	152	113	790
Grp Sat Flow(s),veh/h/ln	1781	1585	1608	1585	459	1608
Q Serve(g_s), s	8.1	4.3	12.4	2.7	6.4	0.0
Cycle Q Clear(g_c), s	8.1	4.3	12.4	2.7	18.8	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	213	190	2320	1143	348	2320
V/C Ratio(X)	0.77	0.43	0.46	0.13	0.32	0.34
Avail Cap(c_a), veh/h	653	581	2320	1143	348	2320
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	36.8	5.2	3.9	1.8	0.0
Incr Delay (d2), s/veh	5.9	1.6	0.7	0.2	2.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	1.7	2.6	0.6	0.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.3	38.3	5.9	4.1	4.3	0.4
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	247		1216			903
Approach Delay, s/veh	42.3		5.7			0.9
Approach LOS	D		A			A

Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		72.9			72.9	17.1
Change Period (Y+Rc), s		* 8			* 8	6.3
Max Green Setting (Gmax), s		* 43			* 43	33.0
Max Q Clear Time (g_c+I1), s		14.4			20.8	10.1
Green Ext Time (p_c), s		8.2			6.5	0.7

Intersection Summary	
HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

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

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	37	1082	70	52	827
Future Vol, veh/h	41	37	1082	70	52	827
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	14	2	2	14
Mvmt Flow	45	40	1176	76	57	899

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1740	588	0	0	1252	0
Stage 1	1176	-	-	-	-	-
Stage 2	564	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	78	452	-	-	552	-
Stage 1	255	-	-	-	-	-
Stage 2	533	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	70	452	-	-	552	-
Mov Cap-2 Maneuver	180	-	-	-	-	-
Stage 1	255	-	-	-	-	-
Stage 2	478	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.4	0	0.7
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	252	552	-
HCM Lane V/C Ratio	-	-	0.336	0.102	-
HCM Control Delay (s)	-	-	26.4	12.3	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	1.4	0.3	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	139	5	1	137	4	1
Future Vol, veh/h	139	5	1	137	4	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	151	5	1	149	4	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	156	0	305	154
Stage 1	-	-	-	-	154	-
Stage 2	-	-	-	-	151	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1424	-	687	892
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	877	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1424	-	686	892
Mov Cap-2 Maneuver	-	-	-	-	686	-
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	876	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	719	-	-	1424	-
HCM Lane V/C Ratio	0.008	-	-	0.001	-
HCM Control Delay (s)	10	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	390	15	15	325	45	10	20	10	65	30	20
Future Volume (veh/h)	10	390	15	15	325	45	10	20	10	65	30	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1633	1870	1870	1648	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	448	9	17	374	27	11	23	0	75	34	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	18	2	2	17	2	2	2	2	2	2	2
Cap, veh/h	665	1817	909	626	1834	928	245	169		253	169	
Arrive On Green	0.59	0.59	0.59	0.59	0.59	0.59	0.09	0.09	0.00	0.09	0.09	0.00
Sat Flow, veh/h	984	3103	1552	934	3131	1585	1371	1870	1585	1384	1870	1585
Grp Volume(v), veh/h	11	448	9	17	374	27	11	23	0	75	34	0
Grp Sat Flow(s),veh/h/ln	984	1552	1552	934	1566	1585	1371	1870	1585	1384	1870	1585
Q Serve(g_s), s	0.3	3.5	0.1	0.4	2.8	0.4	0.4	0.6	0.0	2.6	0.8	0.0
Cycle Q Clear(g_c), s	3.1	3.5	0.1	3.9	2.8	0.4	1.2	0.6	0.0	3.2	0.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	665	1817	909	626	1834	928	245	169		253	169	
V/C Ratio(X)	0.02	0.25	0.01	0.03	0.20	0.03	0.04	0.14		0.30	0.20	
Avail Cap(c_a), veh/h	665	1817	909	626	1834	928	379	352		389	352	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.6	5.0	4.3	6.0	4.9	4.4	21.6	20.9	0.0	22.4	21.1	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.1	0.3	0.1	0.0	0.1	0.0	0.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.0	0.1	0.4	0.1	0.1	0.2	0.0	0.8	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.6	5.3	4.3	6.1	5.1	4.4	21.7	21.1	0.0	22.7	21.3	0.0
LnGrp LOS	A	A	A	A	A	A	C	C		C	C	
Approach Vol, veh/h		468			418			34	A		109	A
Approach Delay, s/veh		5.3			5.1			21.3			22.2	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.9		13.1		36.9		13.1				
Change Period (Y+Rc), s		* 7.6		* 8.6		* 7.6		* 8.6				
Max Green Setting (Gmax), s		* 24		* 9.4		* 24		* 9.4				
Max Q Clear Time (g_c+I1), s		5.9		3.2		5.5		5.2				
Green Ext Time (p_c), s		1.2		0.0		1.5		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	7.6
HCM 6th LOS	A

Notes

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

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

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

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	55	330	15	35	430
Future Vol, veh/h	40	55	330	15	35	430
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	17	2	2	18
Mvmt Flow	44	61	367	17	39	478

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	685	185	0	0	385	0
Stage 1	368	-	-	-	-	-
Stage 2	317	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	382	826	-	-	1170	-
Stage 1	670	-	-	-	-	-
Stage 2	711	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	369	825	-	-	1169	-
Mov Cap-2 Maneuver	478	-	-	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	688	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.2	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	478	825	1169	-
HCM Lane V/C Ratio	-	-	0.093	0.074	0.033	-
HCM Control Delay (s)	-	-	13.3	9.7	8.2	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	5	130	5	5	10	115	320	10	5	485	45
Future Volume (veh/h)	25	5	130	5	5	10	115	320	10	5	485	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1648	1870	1870	1633	1870
Adj Flow Rate, veh/h	29	6	0	6	6	0	135	376	7	6	571	26
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	17	2	2	18	2
Cap, veh/h	46	10	49	13	13	22	604	2098	1040	711	1942	992
Arrive On Green	0.03	0.03	0.00	0.01	0.01	0.00	0.05	0.67	0.67	0.01	0.63	0.63
Sat Flow, veh/h	1488	308	1585	912	912	1585	1781	3131	1552	1781	3103	1585
Grp Volume(v), veh/h	35	0	0	12	0	0	135	376	7	6	571	26
Grp Sat Flow(s),veh/h/ln	1796	0	1585	1825	0	1585	1781	1566	1552	1781	1552	1585
Q Serve(g_s), s	1.9	0.0	0.0	0.7	0.0	0.0	2.7	4.5	0.1	0.1	8.4	0.6
Cycle Q Clear(g_c), s	1.9	0.0	0.0	0.7	0.0	0.0	2.7	4.5	0.1	0.1	8.4	0.6
Prop In Lane	0.83		1.00	0.50		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	0	49	26	0	22	604	2098	1040	711	1942	992
V/C Ratio(X)	0.63	0.00	0.00	0.46	0.00	0.00	0.22	0.18	0.01	0.01	0.29	0.03
Avail Cap(c_a), veh/h	246	0	217	245	0	212	746	2098	1040	843	1942	992
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.9	0.0	0.0	48.9	0.0	0.0	6.1	6.2	5.5	6.7	8.6	7.1
Incr Delay (d2), s/veh	4.2	0.0	0.0	4.7	0.0	0.0	0.1	0.2	0.0	0.0	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	0.3	0.0	0.0	0.7	1.2	0.0	0.0	2.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.1	0.0	0.0	53.6	0.0	0.0	6.2	6.4	5.5	6.7	9.0	7.2
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		35			12			518			603	
Approach Delay, s/veh		52.1			53.6			6.3			8.9	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	75.0		9.4	12.0	70.6		8.0				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 37		* 14	* 13	* 32		13.4				
Max Q Clear Time (g_c+I1), s	2.1	6.5		3.9	4.7	10.4		2.7				
Green Ext Time (p_c), s	0.0	1.3		0.0	0.1	2.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		9.5
HCM 6th LOS		A

Notes

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

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

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	50	40	0	10	10
Future Vol, veh/h	5	50	40	0	10	10
Conflicting Peds, #/hr	4	0	0	4	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	300	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	63	50	0	13	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	54	0	-	0	129	54
Stage 1	-	-	-	-	54	-
Stage 2	-	-	-	-	75	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1551	-	-	-	865	1013
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	948	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1545	-	-	-	855	1009
Mov Cap-2 Maneuver	-	-	-	-	855	-
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	944	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1545	-	-	-	855	1009
HCM Lane V/C Ratio	0.004	-	-	-	0.015	0.012
HCM Control Delay (s)	7.3	-	-	-	9.3	8.6
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	665	35	15	735	150	40	60	25	60	55	20
Future Volume (veh/h)	10	665	35	15	735	150	40	60	25	60	55	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1693	1870	1870	1693	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	747	28	17	826	120	45	67	0	67	62	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	14	2	2	14	2	2	2	2	2	2	2
Cap, veh/h	445	2298	1109	517	2298	1133	180	197		176	197	
Arrive On Green	0.71	0.71	0.71	0.71	0.71	0.71	0.11	0.11	0.00	0.11	0.11	0.00
Sat Flow, veh/h	593	3216	1553	696	3216	1585	1340	1870	1585	1334	1870	1585
Grp Volume(v), veh/h	11	747	28	17	826	120	45	67	0	67	62	0
Grp Sat Flow(s),veh/h/ln	593	1608	1553	696	1608	1585	1340	1870	1585	1334	1870	1585
Q Serve(g_s), s	0.7	7.8	0.5	0.8	8.9	2.1	2.9	3.0	0.0	4.4	2.8	0.0
Cycle Q Clear(g_c), s	9.5	7.8	0.5	8.6	8.9	2.1	5.7	3.0	0.0	7.4	2.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	2298	1109	517	2298	1133	180	197		176	197	
V/C Ratio(X)	0.02	0.33	0.03	0.03	0.36	0.11	0.25	0.34		0.38	0.31	
Avail Cap(c_a), veh/h	445	2298	1109	517	2298	1133	358	445		353	445	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.8	4.8	3.7	6.4	4.9	4.0	39.9	37.3	0.0	40.8	37.2	0.0
Incr Delay (d2), s/veh	0.1	0.4	0.0	0.1	0.4	0.2	0.3	0.4	0.0	0.5	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.6	0.1	0.1	1.9	0.5	1.0	1.4	0.0	1.5	1.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.9	5.2	3.8	6.5	5.4	4.2	40.1	37.7	0.0	41.3	37.6	0.0
LnGrp LOS	A	A	A	A	A	A	D	D		D	D	
Approach Vol, veh/h		786			963			112	A		129	A
Approach Delay, s/veh		5.1			5.2			38.7			39.5	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		71.9		18.1		71.9		18.1				
Change Period (Y+Rc), s		* 7.6		* 8.6		* 7.6		* 8.6				
Max Green Setting (Gmax), s		* 52		* 21		* 52		* 21				
Max Q Clear Time (g_c+I1), s		10.9		7.7		11.5		9.4				
Green Ext Time (p_c), s		3.4		0.1		2.9		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			9.3									
HCM 6th LOS			A									

Notes

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

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

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

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	75	825	95	100	650
Future Vol, veh/h	55	75	825	95	100	650
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	14	2	2	14
Mvmt Flow	63	86	948	109	115	747

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1553	475	0	0	1058	0
Stage 1	949	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	104	536	-	-	654	-
Stage 1	337	-	-	-	-	-
Stage 2	508	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	86	535	-	-	653	-
Mov Cap-2 Maneuver	209	-	-	-	-	-
Stage 1	337	-	-	-	-	-
Stage 2	419	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20	0	1.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	209	535	653	-
HCM Lane V/C Ratio	-	-	0.302	0.161	0.176	-
HCM Control Delay (s)	-	-	29.5	13	11.7	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	1.2	0.6	0.6	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	10	305	10	5	10	250	930	5	10	680	55
Future Volume (veh/h)	95	10	305	10	5	10	250	930	5	10	680	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1693	1870	1870	1693	1870
Adj Flow Rate, veh/h	104	11	2	11	5	0	275	1022	3	11	747	25
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	14	2	2	14	2
Cap, veh/h	131	14	129	23	10	29	487	1863	918	315	1591	784
Arrive On Green	0.08	0.08	0.08	0.02	0.02	0.00	0.09	0.58	0.58	0.01	0.49	0.49
Sat Flow, veh/h	1618	171	1585	1243	565	1585	1781	3216	1584	1781	3216	1583
Grp Volume(v), veh/h	115	0	2	16	0	0	275	1022	3	11	747	25
Grp Sat Flow(s),veh/h/ln	1789	0	1585	1808	0	1585	1781	1608	1584	1781	1608	1583
Q Serve(g_s), s	5.7	0.0	0.1	0.8	0.0	0.0	6.4	17.6	0.1	0.3	13.8	0.7
Cycle Q Clear(g_c), s	5.7	0.0	0.1	0.8	0.0	0.0	6.4	17.6	0.1	0.3	13.8	0.7
Prop In Lane	0.90		1.00	0.69		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	145	0	129	33	0	29	487	1863	918	315	1591	784
V/C Ratio(X)	0.79	0.00	0.02	0.48	0.00	0.00	0.56	0.55	0.00	0.03	0.47	0.03
Avail Cap(c_a), veh/h	193	0	171	189	0	166	574	1863	918	453	1591	784
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	0.0	38.0	43.8	0.0	0.0	10.3	11.7	8.0	11.5	15.0	11.7
Incr Delay (d2), s/veh	10.8	0.0	0.0	4.0	0.0	0.0	0.4	1.2	0.0	0.0	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	0.0	0.4	0.0	0.0	1.9	5.2	0.0	0.1	4.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	0.0	38.1	47.7	0.0	0.0	10.7	12.8	8.0	11.5	16.0	11.7
LnGrp LOS	D	A	D	D	A	A	B	B	A	B	B	B
Approach Vol, veh/h		117			16			1300			783	
Approach Delay, s/veh		51.2			47.7			12.4			15.8	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	60.1		13.6	15.6	52.5		8.2				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 35		* 9.7	* 13	* 30		9.4				
Max Q Clear Time (g_c+I1), s	2.3	19.6		7.7	8.4	15.8		2.8				
Green Ext Time (p_c), s	0.0	3.6		0.0	0.1	2.4		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		15.9	
HCM 6th LOS		B	

Notes

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

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

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	110	105	15	20	15
Future Vol, veh/h	25	110	105	15	20	15
Conflicting Peds, #/hr	4	0	0	4	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	300	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	120	114	16	22	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	134	0	-	0	292	118
Stage 1	-	-	-	-	118	-
Stage 2	-	-	-	-	174	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1451	-	-	-	699	934
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	856	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1445	-	-	-	680	930
Mov Cap-2 Maneuver	-	-	-	-	680	-
Stage 1	-	-	-	-	886	-
Stage 2	-	-	-	-	853	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1445	-	-	-	680	930
HCM Lane V/C Ratio	0.019	-	-	-	0.032	0.018
HCM Control Delay (s)	7.5	-	-	-	10.5	8.9
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	467	15	37	456	67	10	20	23	78	30	20
Future Volume (veh/h)	10	467	15	37	456	67	10	20	23	78	30	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1633	1870	1870	1648	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	537	8	43	524	38	11	23	0	90	34	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	18	2	2	17	2	2	2	2	2	2	2
Cap, veh/h	558	1781	891	561	1797	909	261	191		270	191	
Arrive On Green	0.57	0.57	0.57	0.57	0.57	0.57	0.10	0.10	0.00	0.10	0.10	0.00
Sat Flow, veh/h	848	3103	1552	862	3131	1585	1371	1870	1585	1385	1870	1585
Grp Volume(v), veh/h	11	537	8	43	524	38	11	23	0	90	34	0
Grp Sat Flow(s),veh/h/ln	848	1552	1552	862	1566	1585	1371	1870	1585	1385	1870	1585
Q Serve(g_s), s	0.3	4.5	0.1	1.4	4.3	0.5	0.4	0.6	0.0	3.2	0.8	0.0
Cycle Q Clear(g_c), s	4.6	4.5	0.1	5.8	4.3	0.5	1.2	0.6	0.0	3.7	0.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	558	1781	891	561	1797	909	261	191		270	191	
V/C Ratio(X)	0.02	0.30	0.01	0.08	0.29	0.04	0.04	0.12		0.33	0.18	
Avail Cap(c_a), veh/h	558	1781	891	561	1797	909	379	352		389	352	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.6	5.5	4.6	7.0	5.5	4.7	21.1	20.4	0.0	22.1	20.5	0.0
Incr Delay (d2), s/veh	0.1	0.4	0.0	0.3	0.4	0.1	0.0	0.1	0.0	0.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.0	0.2	0.7	0.1	0.1	0.2	0.0	1.0	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.7	5.9	4.6	7.3	5.9	4.7	21.1	20.5	0.0	22.4	20.7	0.0
LnGrp LOS	A	A	A	A	A	A	C	C		C	C	
Approach Vol, veh/h		556			605			34	A		124	A
Approach Delay, s/veh		5.9			5.9			20.7			21.9	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.3		13.7		36.3		13.7				
Change Period (Y+Rc), s		* 7.6		* 8.6		* 7.6		* 8.6				
Max Green Setting (Gmax), s		* 24		* 9.4		* 24		* 9.4				
Max Q Clear Time (g_c+I1), s		7.8		3.2		6.6		5.7				
Green Ext Time (p_c), s		1.9		0.0		1.8		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	7.8	
HCM 6th LOS	A	

Notes

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

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

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

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	52	99	461	50	61	507
Future Vol, veh/h	52	99	461	50	61	507
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	17	2	2	18
Mvmt Flow	58	110	512	56	68	563

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	931	257	0	0	569	0
Stage 1	513	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	266	742	-	-	999	-
Stage 1	566	-	-	-	-	-
Stage 2	632	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	248	741	-	-	998	-
Mov Cap-2 Maneuver	376	-	-	-	-	-
Stage 1	565	-	-	-	-	-
Stage 2	589	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	376	741	998	-
HCM Lane V/C Ratio	-	-	0.154	0.148	0.068	-
HCM Control Delay (s)	-	-	16.3	10.7	8.9	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.5	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	5	130	5	5	10	115	422	10	5	659	110
Future Volume (veh/h)	63	5	130	5	5	10	115	422	10	5	659	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1648	1870	1870	1633	1870
Adj Flow Rate, veh/h	74	6	0	6	6	0	135	496	6	6	775	60
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	17	2	2	18	2
Cap, veh/h	96	8	92	13	13	22	465	2014	999	602	1859	950
Arrive On Green	0.06	0.06	0.00	0.01	0.01	0.00	0.05	0.64	0.64	0.01	0.60	0.60
Sat Flow, veh/h	1654	134	1585	912	912	1585	1781	3131	1552	1781	3103	1585
Grp Volume(v), veh/h	80	0	0	12	0	0	135	496	6	6	775	60
Grp Sat Flow(s),veh/h/ln	1788	0	1585	1825	0	1585	1781	1566	1552	1781	1552	1585
Q Serve(g_s), s	4.4	0.0	0.0	0.7	0.0	0.0	2.9	6.7	0.1	0.1	13.3	1.6
Cycle Q Clear(g_c), s	4.4	0.0	0.0	0.7	0.0	0.0	2.9	6.7	0.1	0.1	13.3	1.6
Prop In Lane	0.92		1.00	0.50		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	103	0	92	26	0	22	465	2014	999	602	1859	950
V/C Ratio(X)	0.77	0.00	0.00	0.46	0.00	0.00	0.29	0.25	0.01	0.01	0.42	0.06
Avail Cap(c_a), veh/h	245	0	217	245	0	212	608	2014	999	735	1859	950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.5	0.0	0.0	48.9	0.0	0.0	7.8	7.6	6.4	7.8	10.7	8.3
Incr Delay (d2), s/veh	4.6	0.0	0.0	4.7	0.0	0.0	0.1	0.3	0.0	0.0	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.0	0.3	0.0	0.0	0.9	1.8	0.0	0.0	3.9	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.0	0.0	0.0	53.6	0.0	0.0	8.0	7.9	6.4	7.8	11.4	8.5
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	B	A
Approach Vol, veh/h		80			12			637			841	
Approach Delay, s/veh		51.0			53.6			7.9			11.2	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	72.3		12.1	12.0	67.9		8.0				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 37		* 14	* 13	* 32		13.4				
Max Q Clear Time (g_c+I1), s	2.1	8.7		6.4	4.9	15.3		2.7				
Green Ext Time (p_c), s	0.0	1.7		0.1	0.1	2.7		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		12.2
HCM 6th LOS		B

Notes

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

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

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	53	58	12	44	0	52	0	21	10	0	10
Future Vol, veh/h	5	53	58	12	44	0	52	0	21	10	0	10
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	300	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	92	92	80	80	92	92	92	80	92	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	66	63	13	55	0	57	0	23	13	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	59	0	0	129	0	0	198	195	98	206	226	59
Stage 1	-	-	-	-	-	-	110	110	-	85	85	-
Stage 2	-	-	-	-	-	-	88	85	-	121	141	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1545	-	-	1457	-	-	761	700	958	752	673	1007
Stage 1	-	-	-	-	-	-	895	804	-	923	824	-
Stage 2	-	-	-	-	-	-	920	824	-	883	780	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1539	-	-	1457	-	-	744	688	958	724	662	1003
Mov Cap-2 Maneuver	-	-	-	-	-	-	744	688	-	724	662	-
Stage 1	-	-	-	-	-	-	891	801	-	916	813	-
Stage 2	-	-	-	-	-	-	900	813	-	859	777	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1.4	10	9.4
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	795	1539	-	-	1457	-	-	724	1003
HCM Lane V/C Ratio	0.1	0.004	-	-	0.009	-	-	0.017	0.012
HCM Control Delay (s)	10	7.3	-	-	7.5	0	-	10.1	8.6
HCM Lane LOS	B	A	-	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1	0

Intersection	
Int Delay, s/veh	3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	179	87	424	70	51	508
Future Vol, veh/h	179	87	424	70	51	508
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	17	2	2	18
Mvmt Flow	195	95	461	76	55	552

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	847	231	0	0	537	0
Stage 1	461	-	-	-	-	-
Stage 2	386	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	301	771	-	-	1027	-
Stage 1	601	-	-	-	-	-
Stage 2	656	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	285	771	-	-	1027	-
Mov Cap-2 Maneuver	409	-	-	-	-	-
Stage 1	601	-	-	-	-	-
Stage 2	621	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.8	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	409	771	1027	-
HCM Lane V/C Ratio	-	-	0.476	0.123	0.054	-
HCM Control Delay (s)	-	-	21.5	10.3	8.7	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	2.5	0.4	0.2	-

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	48	44	450	35	26	661
Future Vol, veh/h	48	44	450	35	26	661
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	17	2	2	18
Mvmt Flow	52	48	489	38	28	718

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	904	245	0	0	527	0
Stage 1	489	-	-	-	-	-
Stage 2	415	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	277	755	-	-	1036	-
Stage 1	582	-	-	-	-	-
Stage 2	635	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	270	755	-	-	1036	-
Mov Cap-2 Maneuver	397	-	-	-	-	-
Stage 1	582	-	-	-	-	-
Stage 2	618	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.7	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	513	1036	-
HCM Lane V/C Ratio	-	-	0.195	0.027	-
HCM Control Delay (s)	-	-	13.7	8.6	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	82	2	1	52	4	1
Future Vol, veh/h	82	2	1	52	4	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	89	2	1	57	4	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	91	0	149	90
Stage 1	-	-	-	-	90	-
Stage 2	-	-	-	-	59	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1504	-	843	968
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	964	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1504	-	842	968
Mov Cap-2 Maneuver	-	-	-	-	842	-
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	963	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	865	-	-	1504	-
HCM Lane V/C Ratio	0.006	-	-	0.001	-
HCM Control Delay (s)	9.2	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	820	35	34	846	169	40	60	51	86	55	20
Future Volume (veh/h)	10	820	35	34	846	169	40	60	51	86	55	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1693	1870	1870	1693	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	921	27	38	951	132	45	67	0	97	62	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	14	2	2	14	2	2	2	2	2	2	2
Cap, veh/h	374	2229	1076	417	2229	1099	210	237		206	237	
Arrive On Green	0.69	0.69	0.69	0.69	0.69	0.69	0.13	0.13	0.00	0.13	0.13	0.00
Sat Flow, veh/h	521	3216	1553	592	3216	1585	1340	1870	1585	1334	1870	1585
Grp Volume(v), veh/h	11	921	27	38	951	132	45	67	0	97	62	0
Grp Sat Flow(s),veh/h/ln	521	1608	1553	592	1608	1585	1340	1870	1585	1334	1870	1585
Q Serve(g_s), s	0.8	11.1	0.5	2.7	11.6	2.5	2.8	2.9	0.0	6.4	2.7	0.0
Cycle Q Clear(g_c), s	12.4	11.1	0.5	13.7	11.6	2.5	5.5	2.9	0.0	9.3	2.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	374	2229	1076	417	2229	1099	210	237		206	237	
V/C Ratio(X)	0.03	0.41	0.03	0.09	0.43	0.12	0.21	0.28		0.47	0.26	
Avail Cap(c_a), veh/h	374	2229	1076	417	2229	1099	359	445		354	445	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	8.7	5.9	4.3	8.9	6.0	4.6	38.0	35.6	0.0	39.8	35.5	0.0
Incr Delay (d2), s/veh	0.1	0.6	0.0	0.4	0.6	0.2	0.2	0.2	0.0	0.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.5	0.1	0.3	2.7	0.6	0.9	1.3	0.0	2.1	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.9	6.5	4.4	9.3	6.6	4.8	38.2	35.8	0.0	40.4	35.7	0.0
LnGrp LOS	A	A	A	A	A	A	D	D		D	D	
Approach Vol, veh/h		959			1121			112	A		159	A
Approach Delay, s/veh		6.5			6.5			36.8			38.6	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		70.0		20.0		70.0		20.0				
Change Period (Y+Rc), s		* 7.6		* 8.6		* 7.6		* 8.6				
Max Green Setting (Gmax), s		* 52		* 21		* 52		* 21				
Max Q Clear Time (g_c+I1), s		15.7		7.5		14.4		11.3				
Green Ext Time (p_c), s		4.3		0.1		3.8		0.1				

Intersection Summary		
HCM 6th Ctrl Delay	10.1	
HCM 6th LOS	B	

Notes

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

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

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

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	65	112	937	166	152	805
Future Vol, veh/h	65	112	937	166	152	805
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	14	2	2	14
Mvmt Flow	75	129	1077	191	175	925

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1891	540	0	0	1269	0
Stage 1	1078	-	-	-	-	-
Stage 2	813	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	~ 62	486	-	-	543	-
Stage 1	288	-	-	-	-	-
Stage 2	396	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 42	486	-	-	542	-
Mov Cap-2 Maneuver	146	-	-	-	-	-
Stage 1	288	-	-	-	-	-
Stage 2	268	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29	0	2.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	146	486	542	-
HCM Lane V/C Ratio	-	-	0.512	0.265	0.322	-
HCM Control Delay (s)	-	-	53	15.1	14.8	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	2.5	1.1	1.4	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	10	305	10	5	10	250	1134	5	10	826	111
Future Volume (veh/h)	172	10	305	10	5	10	250	1134	5	10	826	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1693	1870	1870	1693	1870
Adj Flow Rate, veh/h	189	11	6	11	5	0	275	1246	3	11	908	46
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	14	2	2	14	2
Cap, veh/h	182	11	171	23	10	29	405	1778	875	224	1490	734
Arrive On Green	0.11	0.11	0.11	0.02	0.02	0.00	0.10	0.55	0.55	0.01	0.46	0.46
Sat Flow, veh/h	1688	98	1585	1243	565	1585	1781	3216	1584	1781	3216	1583
Grp Volume(v), veh/h	200	0	6	16	0	0	275	1246	3	11	908	46
Grp Sat Flow(s),veh/h/ln	1786	0	1585	1808	0	1585	1781	1608	1584	1781	1608	1583
Q Serve(g_s), s	9.7	0.0	0.3	0.8	0.0	0.0	6.8	25.5	0.1	0.3	19.0	1.4
Cycle Q Clear(g_c), s	9.7	0.0	0.3	0.8	0.0	0.0	6.8	25.5	0.1	0.3	19.0	1.4
Prop In Lane	0.94		1.00	0.69		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	192	0	171	33	0	29	405	1778	875	224	1490	734
V/C Ratio(X)	1.04	0.00	0.04	0.48	0.00	0.00	0.68	0.70	0.00	0.05	0.61	0.06
Avail Cap(c_a), veh/h	192	0	171	189	0	166	484	1778	875	362	1490	734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	0.0	36.0	43.8	0.0	0.0	13.8	14.7	9.0	14.1	18.0	13.3
Incr Delay (d2), s/veh	75.5	0.0	0.0	4.0	0.0	0.0	1.9	2.3	0.0	0.0	1.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	0.0	0.1	0.4	0.0	0.0	2.3	7.9	0.0	0.1	6.3	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	115.6	0.0	36.0	47.7	0.0	0.0	15.7	17.0	9.0	14.2	19.9	13.5
LnGrp LOS	F	A	D	D	A	A	B	B	A	B	B	B
Approach Vol, veh/h		206			16			1524			965	
Approach Delay, s/veh		113.3			47.7			16.8			19.5	
Approach LOS		F			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	57.7		16.0	16.0	49.7		8.2				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 35		* 9.7	* 13	* 30		9.4				
Max Q Clear Time (g_c+I1), s	2.3	27.5		11.7	8.8	21.0		2.8				
Green Ext Time (p_c), s	0.0	3.2		0.0	0.1	2.6		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

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

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

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	115	118	25	109	15	43	0	18	20	0	15
Future Vol, veh/h	25	115	118	25	109	15	43	0	18	20	0	15
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	300	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	125	128	27	118	16	47	0	20	22	0	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	138	0	0	253	0	0	431	435	189	429	483	122
Stage 1	-	-	-	-	-	-	243	243	-	176	176	-
Stage 2	-	-	-	-	-	-	188	192	-	253	307	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1446	-	-	1312	-	-	535	514	853	536	483	929
Stage 1	-	-	-	-	-	-	761	705	-	826	753	-
Stage 2	-	-	-	-	-	-	814	742	-	751	661	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1440	-	-	1312	-	-	509	491	853	505	462	925
Mov Cap-2 Maneuver	-	-	-	-	-	-	509	491	-	505	462	-
Stage 1	-	-	-	-	-	-	747	692	-	808	733	-
Stage 2	-	-	-	-	-	-	782	723	-	720	648	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	1.3	12	10.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	578	1440	-	-	1312	-	-	505	925
HCM Lane V/C Ratio	0.115	0.019	-	-	0.021	-	-	0.043	0.018
HCM Control Delay (s)	12	7.5	-	-	7.8	0	-	12.4	9
HCM Lane LOS	B	A	-	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-	-	0.1	0.1

Intersection	
Int Delay, s/veh	8.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	152	75	1028	140	104	766
Future Vol, veh/h	152	75	1028	140	104	766
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	14	2	2	14
Mvmt Flow	165	82	1117	152	113	833

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1760	559	0	0	1269	0
Stage 1	1117	-	-	-	-	-
Stage 2	643	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	~ 76	472	-	-	543	-
Stage 1	275	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 60	472	-	-	543	-
Mov Cap-2 Maneuver	173	-	-	-	-	-
Stage 1	275	-	-	-	-	-
Stage 2	384	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	78.9	0	1.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	173	472	543	-
HCM Lane V/C Ratio	-	-	0.955	0.173	0.208	-
HCM Control Delay (s)	-	-	110.8	14.2	13.4	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	7.4	0.6	0.8	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	37	1131	70	52	866
Future Vol, veh/h	41	37	1131	70	52	866
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	14	2	2	14
Mvmt Flow	45	40	1229	76	57	941

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1814	615	0	0	1305	0
Stage 1	1229	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	70	434	-	-	526	-
Stage 1	239	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	62	434	-	-	526	-
Mov Cap-2 Maneuver	169	-	-	-	-	-
Stage 1	239	-	-	-	-	-
Stage 2	464	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.3	0	0.7
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	238	526	-
HCM Lane V/C Ratio	-	-	0.356	0.107	-
HCM Control Delay (s)	-	-	28.3	12.7	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	1.5	0.4	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	148	5	1	145	4	1
Future Vol, veh/h	148	5	1	145	4	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	161	5	1	158	4	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	166	0	324	164
Stage 1	-	-	-	-	164	-
Stage 2	-	-	-	-	160	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1412	-	670	881
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	869	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1412	-	669	881
Mov Cap-2 Maneuver	-	-	-	-	669	-
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	868	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	703	-	-	1412	-
HCM Lane V/C Ratio	0.008	-	-	0.001	-
HCM Control Delay (s)	10.2	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	467	15	37	456	67	10	20	23	78	30	20
Future Volume (veh/h)	10	467	15	37	456	67	10	20	23	78	30	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1633	1870	1870	1648	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	537	8	43	524	38	11	23	0	90	34	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	18	2	2	17	2	2	2	2	2	2	2
Cap, veh/h	631	1781	891	561	1797	909	261	191		270	191	
Arrive On Green	0.57	0.57	0.57	1.00	1.00	1.00	0.10	0.10	0.00	0.10	0.10	0.00
Sat Flow, veh/h	848	3103	1552	862	3131	1585	1371	1870	1585	1385	1870	1585
Grp Volume(v), veh/h	11	537	8	43	524	38	11	23	0	90	34	0
Grp Sat Flow(s),veh/h/ln	848	1552	1552	862	1566	1585	1371	1870	1585	1385	1870	1585
Q Serve(g_s), s	0.3	4.5	0.1	0.4	0.0	0.0	0.4	0.6	0.0	3.2	0.8	0.0
Cycle Q Clear(g_c), s	0.3	4.5	0.1	4.9	0.0	0.0	1.2	0.6	0.0	3.7	0.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	631	1781	891	561	1797	909	261	191		270	191	
V/C Ratio(X)	0.02	0.30	0.01	0.08	0.29	0.04	0.04	0.12		0.33	0.18	
Avail Cap(c_a), veh/h	631	1781	891	561	1797	909	379	352		389	352	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	4.6	5.5	4.6	0.4	0.0	0.0	21.1	20.4	0.0	22.1	20.5	0.0
Incr Delay (d2), s/veh	0.1	0.4	0.0	0.3	0.4	0.1	0.0	0.1	0.0	0.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.0	0.0	0.1	0.0	0.1	0.2	0.0	1.0	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.7	5.9	4.6	0.6	0.4	0.1	21.1	20.5	0.0	22.4	20.7	0.0
LnGrp LOS	A	A	A	A	A	A	C	C		C	C	
Approach Vol, veh/h		556			605			34	A		124	A
Approach Delay, s/veh		5.9			0.4			20.7			21.9	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.3		13.7		36.3		13.7				
Change Period (Y+Rc), s		* 7.6		* 8.6		* 7.6		* 8.6				
Max Green Setting (Gmax), s		* 24		* 9.4		* 24		* 9.4				
Max Q Clear Time (g_c+I1), s		6.9		3.2		6.5		5.7				
Green Ext Time (p_c), s		1.9		0.0		1.8		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		5.3
HCM 6th LOS		A

Notes

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

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

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

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	52	99	461	50	61	507
Future Vol, veh/h	52	99	461	50	61	507
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	17	2	2	18
Mvmt Flow	58	110	512	56	68	563

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	931	257	0	0	569	0
Stage 1	513	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	266	742	-	-	999	-
Stage 1	566	-	-	-	-	-
Stage 2	632	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	248	741	-	-	998	-
Mov Cap-2 Maneuver	376	-	-	-	-	-
Stage 1	565	-	-	-	-	-
Stage 2	589	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	376	741	998	-
HCM Lane V/C Ratio	-	-	0.154	0.148	0.068	-
HCM Control Delay (s)	-	-	16.3	10.7	8.9	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.5	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	5	130	5	5	10	115	422	10	5	659	110
Future Volume (veh/h)	63	5	130	5	5	10	115	422	10	5	659	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1648	1870	1870	1633	1870
Adj Flow Rate, veh/h	74	6	0	6	6	0	135	496	6	6	775	60
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	17	2	2	18	2
Cap, veh/h	96	8	92	13	13	22	465	2014	999	602	1859	950
Arrive On Green	0.06	0.06	0.00	0.01	0.01	0.00	0.05	0.64	0.64	0.01	0.60	0.60
Sat Flow, veh/h	1654	134	1585	912	912	1585	1781	3131	1552	1781	3103	1585
Grp Volume(v), veh/h	80	0	0	12	0	0	135	496	6	6	775	60
Grp Sat Flow(s),veh/h/ln	1788	0	1585	1825	0	1585	1781	1566	1552	1781	1552	1585
Q Serve(g_s), s	4.4	0.0	0.0	0.7	0.0	0.0	2.9	6.7	0.1	0.1	13.3	1.6
Cycle Q Clear(g_c), s	4.4	0.0	0.0	0.7	0.0	0.0	2.9	6.7	0.1	0.1	13.3	1.6
Prop In Lane	0.92		1.00	0.50		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	103	0	92	26	0	22	465	2014	999	602	1859	950
V/C Ratio(X)	0.77	0.00	0.00	0.46	0.00	0.00	0.29	0.25	0.01	0.01	0.42	0.06
Avail Cap(c_a), veh/h	245	0	217	245	0	212	608	2014	999	735	1859	950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.5	0.0	0.0	48.9	0.0	0.0	7.8	7.6	6.4	7.8	10.7	8.3
Incr Delay (d2), s/veh	4.6	0.0	0.0	4.7	0.0	0.0	0.1	0.3	0.0	0.0	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.0	0.3	0.0	0.0	0.9	1.8	0.0	0.0	3.9	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.0	0.0	0.0	53.6	0.0	0.0	8.0	7.9	6.4	7.8	11.4	8.5
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	B	A
Approach Vol, veh/h		80			12			637			841	
Approach Delay, s/veh		51.0			53.6			7.9			11.2	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	72.3		12.1	12.0	67.9		8.0				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 37		* 14	* 13	* 32		13.4				
Max Q Clear Time (g_c+I1), s	2.1	8.7		6.4	4.9	15.3		2.7				
Green Ext Time (p_c), s	0.0	1.7		0.1	0.1	2.7		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		12.2
HCM 6th LOS		B

Notes

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

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

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	53	58	12	44	0	52	0	21	10	0	10
Future Vol, veh/h	5	53	58	12	44	0	52	0	21	10	0	10
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	300	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	92	92	80	80	92	92	92	80	92	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	66	63	13	55	0	57	0	23	13	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	59	0	0	129	0	0	198	195	98	206	226	59
Stage 1	-	-	-	-	-	-	110	110	-	85	85	-
Stage 2	-	-	-	-	-	-	88	85	-	121	141	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1545	-	-	1457	-	-	761	700	958	752	673	1007
Stage 1	-	-	-	-	-	-	895	804	-	923	824	-
Stage 2	-	-	-	-	-	-	920	824	-	883	780	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1539	-	-	1457	-	-	744	688	958	724	662	1003
Mov Cap-2 Maneuver	-	-	-	-	-	-	744	688	-	724	662	-
Stage 1	-	-	-	-	-	-	891	801	-	916	813	-
Stage 2	-	-	-	-	-	-	900	813	-	859	777	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1.4	10	9.4
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	795	1539	-	-	1457	-	-	724	1003
HCM Lane V/C Ratio	0.1	0.004	-	-	0.009	-	-	0.017	0.012
HCM Control Delay (s)	10	7.3	-	-	7.5	0	-	10.1	8.6
HCM Lane LOS	B	A	-	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1	0



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	179	87	424	70	51	508
Future Volume (veh/h)	179	87	424	70	51	508
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1648	1870	1870	1633
Adj Flow Rate, veh/h	195	95	461	76	55	552
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	17	2	2	18
Cap, veh/h	241	214	2260	1144	657	2240
Arrive On Green	0.14	0.14	0.72	0.72	1.00	1.00
Sat Flow, veh/h	1781	1585	3214	1585	868	3185
Grp Volume(v), veh/h	195	95	461	76	55	552
Grp Sat Flow(s),veh/h/ln	1781	1585	1566	1585	868	1552
Q Serve(g_s), s	10.6	5.5	4.8	1.4	0.5	0.0
Cycle Q Clear(g_c), s	10.6	5.5	4.8	1.4	5.3	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	241	214	2260	1144	657	2240
V/C Ratio(X)	0.81	0.44	0.20	0.07	0.08	0.25
Avail Cap(c_a), veh/h	761	677	2260	1144	657	2240
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.0	39.8	4.5	4.1	0.2	0.0
Incr Delay (d2), s/veh	6.4	1.4	0.2	0.1	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	2.2	1.1	0.3	0.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.4	41.2	4.7	4.2	0.4	0.3
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	290		537			607
Approach Delay, s/veh	46.1		4.7			0.3
Approach LOS	D		A			A

Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		80.2			80.2	19.8
Change Period (Y+Rc), s		* 8			* 8	6.3
Max Green Setting (Gmax), s		* 43			* 43	42.7
Max Q Clear Time (g_c+I1), s		6.8			7.3	12.6
Green Ext Time (p_c), s		3.0			3.8	0.9

Intersection Summary	
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Notes

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

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	48	44	450	35	26	661
Future Vol, veh/h	48	44	450	35	26	661
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	17	2	2	18
Mvmt Flow	52	48	489	38	28	718

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	904	245	0	0	527	0
Stage 1	489	-	-	-	-	-
Stage 2	415	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	277	755	-	-	1036	-
Stage 1	582	-	-	-	-	-
Stage 2	635	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	270	755	-	-	1036	-
Mov Cap-2 Maneuver	397	-	-	-	-	-
Stage 1	582	-	-	-	-	-
Stage 2	618	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.7	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	513	1036	-
HCM Lane V/C Ratio	-	-	0.195	0.027	-
HCM Control Delay (s)	-	-	13.7	8.6	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	82	2	1	52	4	1
Future Vol, veh/h	82	2	1	52	4	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	89	2	1	57	4	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	91	0	149	90
Stage 1	-	-	-	-	90	-
Stage 2	-	-	-	-	59	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1504	-	843	968
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	964	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1504	-	842	968
Mov Cap-2 Maneuver	-	-	-	-	842	-
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	963	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	865	-	-	1504	-
HCM Lane V/C Ratio	0.006	-	-	0.001	-
HCM Control Delay (s)	9.2	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	820	35	34	846	169	40	60	51	86	55	20
Future Volume (veh/h)	10	820	35	34	846	169	40	60	51	86	55	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1693	1870	1870	1693	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	921	27	38	951	132	45	67	0	97	62	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	14	2	2	14	2	2	2	2	2	2	2
Cap, veh/h	441	2229	1076	417	2229	1099	210	237		206	237	
Arrive On Green	0.69	0.69	0.69	1.00	1.00	1.00	0.13	0.13	0.00	0.13	0.13	0.00
Sat Flow, veh/h	521	3216	1553	592	3216	1585	1340	1870	1585	1334	1870	1585
Grp Volume(v), veh/h	11	921	27	38	951	132	45	67	0	97	62	0
Grp Sat Flow(s),veh/h/ln	521	1608	1553	592	1608	1585	1340	1870	1585	1334	1870	1585
Q Serve(g_s), s	0.6	11.1	0.5	1.1	0.0	0.0	2.8	2.9	0.0	6.4	2.7	0.0
Cycle Q Clear(g_c), s	0.6	11.1	0.5	12.2	0.0	0.0	5.5	2.9	0.0	9.3	2.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	441	2229	1076	417	2229	1099	210	237		206	237	
V/C Ratio(X)	0.02	0.41	0.03	0.09	0.43	0.12	0.21	0.28		0.47	0.26	
Avail Cap(c_a), veh/h	441	2229	1076	417	2229	1099	359	445		354	445	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	4.3	5.9	4.3	1.1	0.0	0.0	38.0	35.6	0.0	39.8	35.5	0.0
Incr Delay (d2), s/veh	0.1	0.6	0.0	0.4	0.6	0.2	0.2	0.2	0.0	0.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.5	0.1	0.1	0.2	0.1	0.9	1.3	0.0	2.1	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.4	6.5	4.4	1.5	0.6	0.2	38.2	35.8	0.0	40.4	35.7	0.0
LnGrp LOS	A	A	A	A	A	A	D	D		D	D	
Approach Vol, veh/h		959			1121			112	A		159	A
Approach Delay, s/veh		6.4			0.6			36.8			38.6	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		70.0		20.0		70.0		20.0				
Change Period (Y+Rc), s		* 7.6		* 8.6		* 7.6		* 8.6				
Max Green Setting (Gmax), s		* 52		* 21		* 52		* 21				
Max Q Clear Time (g_c+I1), s		14.2		7.5		13.1		11.3				
Green Ext Time (p_c), s		4.3		0.1		3.8		0.1				

Intersection Summary		
HCM 6th Ctrl Delay	7.3	
HCM 6th LOS	A	

Notes

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

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

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

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	65	112	937	166	152	805
Future Vol, veh/h	65	112	937	166	152	805
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	14	2	2	14
Mvmt Flow	75	129	1077	191	175	925

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1891	540	0	0	1269	0
Stage 1	1078	-	-	-	-	-
Stage 2	813	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	~ 62	486	-	-	543	-
Stage 1	288	-	-	-	-	-
Stage 2	396	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 42	486	-	-	542	-
Mov Cap-2 Maneuver	146	-	-	-	-	-
Stage 1	288	-	-	-	-	-
Stage 2	268	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29	0	2.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	146	486	542	-
HCM Lane V/C Ratio	-	-	0.512	0.265	0.322	-
HCM Control Delay (s)	-	-	53	15.1	14.8	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	2.5	1.1	1.4	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	10	305	10	5	10	250	1134	5	10	826	111
Future Volume (veh/h)	172	10	305	10	5	10	250	1134	5	10	826	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1693	1870	1870	1693	1870
Adj Flow Rate, veh/h	189	11	6	11	5	0	275	1246	3	11	908	46
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	14	2	2	14	2
Cap, veh/h	182	11	171	23	10	29	405	1778	875	224	1490	734
Arrive On Green	0.11	0.11	0.11	0.02	0.02	0.00	0.10	0.55	0.55	0.01	0.46	0.46
Sat Flow, veh/h	1688	98	1585	1243	565	1585	1781	3216	1584	1781	3216	1583
Grp Volume(v), veh/h	200	0	6	16	0	0	275	1246	3	11	908	46
Grp Sat Flow(s),veh/h/ln	1786	0	1585	1808	0	1585	1781	1608	1584	1781	1608	1583
Q Serve(g_s), s	9.7	0.0	0.3	0.8	0.0	0.0	6.8	25.5	0.1	0.3	19.0	1.4
Cycle Q Clear(g_c), s	9.7	0.0	0.3	0.8	0.0	0.0	6.8	25.5	0.1	0.3	19.0	1.4
Prop In Lane	0.94		1.00	0.69		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	192	0	171	33	0	29	405	1778	875	224	1490	734
V/C Ratio(X)	1.04	0.00	0.04	0.48	0.00	0.00	0.68	0.70	0.00	0.05	0.61	0.06
Avail Cap(c_a), veh/h	192	0	171	189	0	166	484	1778	875	362	1490	734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	0.0	36.0	43.8	0.0	0.0	13.8	14.7	9.0	14.1	18.0	13.3
Incr Delay (d2), s/veh	75.5	0.0	0.0	4.0	0.0	0.0	1.9	2.3	0.0	0.0	1.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	0.0	0.1	0.4	0.0	0.0	2.3	7.9	0.0	0.1	6.3	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	115.6	0.0	36.0	47.7	0.0	0.0	15.7	17.0	9.0	14.2	19.9	13.5
LnGrp LOS	F	A	D	D	A	A	B	B	A	B	B	B
Approach Vol, veh/h		206			16			1524			965	
Approach Delay, s/veh		113.3			47.7			16.8			19.5	
Approach LOS		F			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	57.7		16.0	16.0	49.7		8.2				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 35		* 9.7	* 13	* 30		9.4				
Max Q Clear Time (g_c+I1), s	2.3	27.5		11.7	8.8	21.0		2.8				
Green Ext Time (p_c), s	0.0	3.2		0.0	0.1	2.6		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

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

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

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	115	118	25	109	15	43	0	18	20	0	15
Future Vol, veh/h	25	115	118	25	109	15	43	0	18	20	0	15
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	300	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	125	128	27	118	16	47	0	20	22	0	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	138	0	0	253	0	0	431	435	189	429	483	122
Stage 1	-	-	-	-	-	-	243	243	-	176	176	-
Stage 2	-	-	-	-	-	-	188	192	-	253	307	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1446	-	-	1312	-	-	535	514	853	536	483	929
Stage 1	-	-	-	-	-	-	761	705	-	826	753	-
Stage 2	-	-	-	-	-	-	814	742	-	751	661	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1440	-	-	1312	-	-	509	491	853	505	462	925
Mov Cap-2 Maneuver	-	-	-	-	-	-	509	491	-	505	462	-
Stage 1	-	-	-	-	-	-	747	692	-	808	733	-
Stage 2	-	-	-	-	-	-	782	723	-	720	648	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	1.3	12	10.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	578	1440	-	-	1312	-	-	505	925
HCM Lane V/C Ratio	0.115	0.019	-	-	0.021	-	-	0.043	0.018
HCM Control Delay (s)	12	7.5	-	-	7.8	0	-	12.4	9
HCM Lane LOS	B	A	-	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-	-	0.1	0.1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	152	75	1028	140	104	766
Future Volume (veh/h)	152	75	1028	140	104	766
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1693	1870	1870	1693
Adj Flow Rate, veh/h	165	82	1117	152	113	833
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	14	2	2	14
Cap, veh/h	213	190	2320	1143	330	2320
Arrive On Green	0.12	0.12	0.72	0.72	1.00	1.00
Sat Flow, veh/h	1781	1585	3300	1585	437	3300
Grp Volume(v), veh/h	165	82	1117	152	113	833
Grp Sat Flow(s),veh/h/ln	1781	1585	1608	1585	437	1608
Q Serve(g_s), s	8.1	4.3	13.3	2.7	7.5	0.0
Cycle Q Clear(g_c), s	8.1	4.3	13.3	2.7	20.8	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	213	190	2320	1143	330	2320
V/C Ratio(X)	0.77	0.43	0.48	0.13	0.34	0.36
Avail Cap(c_a), veh/h	653	581	2320	1143	330	2320
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	36.8	5.4	3.9	2.1	0.0
Incr Delay (d2), s/veh	5.9	1.6	0.7	0.2	2.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	1.7	2.7	0.6	0.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.3	38.3	6.1	4.1	4.9	0.4
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	247		1269			946
Approach Delay, s/veh	42.3		5.8			1.0
Approach LOS	D		A			A

Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		72.9			72.9	17.1
Change Period (Y+Rc), s		* 8			* 8	6.3
Max Green Setting (Gmax), s		* 43			* 43	33.0
Max Q Clear Time (g_c+I1), s		15.3			22.8	10.1
Green Ext Time (p_c), s		8.6			6.7	0.7

Intersection Summary	
HCM 6th Ctrl Delay	7.6
HCM 6th LOS	A

Notes

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

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	37	1131	70	52	866
Future Vol, veh/h	41	37	1131	70	52	866
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	14	2	2	14
Mvmt Flow	45	40	1229	76	57	941

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1814	615	0	0	1305	0
Stage 1	1229	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	70	434	-	-	526	-
Stage 1	239	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	62	434	-	-	526	-
Mov Cap-2 Maneuver	169	-	-	-	-	-
Stage 1	239	-	-	-	-	-
Stage 2	464	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.3	0	0.7
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	238	526	-
HCM Lane V/C Ratio	-	-	0.356	0.107	-
HCM Control Delay (s)	-	-	28.3	12.7	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	1.5	0.4	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	148	5	1	145	4	1
Future Vol, veh/h	148	5	1	145	4	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	161	5	1	158	4	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	166	0	324	164
Stage 1	-	-	-	-	164	-
Stage 2	-	-	-	-	160	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1412	-	670	881
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	869	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1412	-	669	881
Mov Cap-2 Maneuver	-	-	-	-	669	-
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	868	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	703	-	-	1412	-
HCM Lane V/C Ratio	0.008	-	-	0.001	-
HCM Control Delay (s)	10.2	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	460	15	16	396	52	10	20	16	72	30	20
Future Volume (veh/h)	10	460	15	16	396	52	10	20	16	72	30	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1633	1870	1870	1648	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	529	9	18	455	31	11	23	0	83	34	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	18	2	2	17	2	2	2	2	2	2	2
Cap, veh/h	606	1798	899	571	1814	918	254	181		262	181	
Arrive On Green	0.58	0.58	0.58	0.58	0.58	0.58	0.10	0.10	0.00	0.10	0.10	0.00
Sat Flow, veh/h	910	3103	1552	867	3131	1585	1371	1870	1585	1384	1870	1585
Grp Volume(v), veh/h	11	529	9	18	455	31	11	23	0	83	34	0
Grp Sat Flow(s),veh/h/ln	910	1552	1552	867	1566	1585	1371	1870	1585	1384	1870	1585
Q Serve(g_s), s	0.3	4.3	0.1	0.5	3.6	0.4	0.4	0.6	0.0	2.9	0.8	0.0
Cycle Q Clear(g_c), s	3.9	4.3	0.1	4.9	3.6	0.4	1.2	0.6	0.0	3.5	0.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	606	1798	899	571	1814	918	254	181		262	181	
V/C Ratio(X)	0.02	0.29	0.01	0.03	0.25	0.03	0.04	0.13		0.32	0.19	
Avail Cap(c_a), veh/h	606	1798	899	571	1814	918	379	352		389	352	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.1	5.3	4.5	6.6	5.2	4.5	21.3	20.7	0.0	22.2	20.8	0.0
Incr Delay (d2), s/veh	0.1	0.4	0.0	0.1	0.3	0.1	0.0	0.1	0.0	0.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.0	0.1	0.6	0.1	0.1	0.2	0.0	0.9	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.2	5.8	4.5	6.7	5.5	4.6	21.4	20.8	0.0	22.5	21.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	C		C	C	
Approach Vol, veh/h		549			504			34	A		117	A
Approach Delay, s/veh		5.7			5.5			21.0			22.1	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.6		13.4		36.6		13.4				
Change Period (Y+Rc), s		* 7.6		* 8.6		* 7.6		* 8.6				
Max Green Setting (Gmax), s		* 24		* 9.4		* 24		* 9.4				
Max Q Clear Time (g_c+I1), s		6.9		3.2		6.3		5.5				
Green Ext Time (p_c), s		1.5		0.0		1.8		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

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

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

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

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	47	60	404	17	40	508
Future Vol, veh/h	47	60	404	17	40	508
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	17	2	2	18
Mvmt Flow	52	67	449	19	44	564

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	820	226	0	0	469	0
Stage 1	450	-	-	-	-	-
Stage 2	370	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	313	777	-	-	1089	-
Stage 1	609	-	-	-	-	-
Stage 2	669	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	300	776	-	-	1088	-
Mov Cap-2 Maneuver	422	-	-	-	-	-
Stage 1	608	-	-	-	-	-
Stage 2	642	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	422	776	1088	-
HCM Lane V/C Ratio	-	-	0.124	0.086	0.041	-
HCM Control Delay (s)	-	-	14.7	10.1	8.4	-
HCM Lane LOS	-	-	B	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.3	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	5	150	10	5	10	130	384	10	5	573	55
Future Volume (veh/h)	30	5	150	10	5	10	130	384	10	5	573	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1648	1870	1870	1633	1870
Adj Flow Rate, veh/h	35	6	0	12	6	0	153	452	6	6	674	31
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	17	2	2	18	2
Cap, veh/h	52	9	54	24	12	31	541	2072	1027	650	1908	975
Arrive On Green	0.03	0.03	0.00	0.02	0.02	0.00	0.05	0.66	0.66	0.01	0.61	0.61
Sat Flow, veh/h	1531	263	1585	1207	603	1585	1781	3131	1552	1781	3103	1585
Grp Volume(v), veh/h	41	0	0	18	0	0	153	452	6	6	674	31
Grp Sat Flow(s),veh/h/ln	1794	0	1585	1810	0	1585	1781	1566	1552	1781	1552	1585
Q Serve(g_s), s	2.3	0.0	0.0	1.0	0.0	0.0	3.1	5.7	0.1	0.1	10.7	0.8
Cycle Q Clear(g_c), s	2.3	0.0	0.0	1.0	0.0	0.0	3.1	5.7	0.1	0.1	10.7	0.8
Prop In Lane	0.85		1.00	0.67		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	61	0	54	36	0	31	541	2072	1027	650	1908	975
V/C Ratio(X)	0.67	0.00	0.00	0.51	0.00	0.00	0.28	0.22	0.01	0.01	0.35	0.03
Avail Cap(c_a), veh/h	246	0	217	243	0	212	679	2072	1027	782	1908	975
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.8	0.0	0.0	48.5	0.0	0.0	6.8	6.7	5.7	7.2	9.5	7.6
Incr Delay (d2), s/veh	4.7	0.0	0.0	4.1	0.0	0.0	0.1	0.2	0.0	0.0	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	0.5	0.0	0.0	0.9	1.5	0.0	0.0	3.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	0.0	0.0	52.6	0.0	0.0	6.9	6.9	5.8	7.2	10.0	7.6
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	A	A
Approach Vol, veh/h		41			18			611			711	
Approach Delay, s/veh		52.4			52.6			6.9			9.9	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	74.2		9.7	12.2	69.5		8.6				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 37		* 14	* 13	* 32		13.4				
Max Q Clear Time (g_c+I1), s	2.1	7.7		4.3	5.1	12.7		3.0				
Green Ext Time (p_c), s	0.0	1.6		0.0	0.1	2.4		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			10.4									
HCM 6th LOS			B									

Notes

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

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

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	57	47	0	10	15
Future Vol, veh/h	5	57	47	0	10	15
Conflicting Peds, #/hr	4	0	0	4	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	300	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	71	59	0	13	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	63	0	-	0	146	63
Stage 1	-	-	-	-	63	-
Stage 2	-	-	-	-	83	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1540	-	-	-	846	1002
Stage 1	-	-	-	-	960	-
Stage 2	-	-	-	-	940	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1534	-	-	-	836	998
Mov Cap-2 Maneuver	-	-	-	-	836	-
Stage 1	-	-	-	-	952	-
Stage 2	-	-	-	-	936	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1534	-	-	-	836	998
HCM Lane V/C Ratio	0.004	-	-	-	0.015	0.019
HCM Control Delay (s)	7.4	-	-	-	9.4	8.7
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	769	40	17	862	168	45	60	31	67	55	20
Future Volume (veh/h)	10	769	40	17	862	168	45	60	31	67	55	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1693	1870	1870	1693	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	864	32	19	969	136	51	67	0	75	62	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	14	2	2	14	2	2	2	2	2	2	2
Cap, veh/h	377	2279	1100	454	2279	1123	188	208		184	208	
Arrive On Green	0.71	0.71	0.71	0.71	0.71	0.71	0.11	0.11	0.00	0.11	0.11	0.00
Sat Flow, veh/h	510	3216	1553	621	3216	1585	1340	1870	1585	1334	1870	1585
Grp Volume(v), veh/h	11	864	32	19	969	136	51	67	0	75	62	0
Grp Sat Flow(s),veh/h/ln	510	1608	1553	621	1608	1585	1340	1870	1585	1334	1870	1585
Q Serve(g_s), s	0.8	9.6	0.6	1.1	11.3	2.5	3.3	3.0	0.0	4.9	2.7	0.0
Cycle Q Clear(g_c), s	12.1	9.6	0.6	10.8	11.3	2.5	6.0	3.0	0.0	7.9	2.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	377	2279	1100	454	2279	1123	188	208		184	208	
V/C Ratio(X)	0.03	0.38	0.03	0.04	0.43	0.12	0.27	0.32		0.41	0.30	
Avail Cap(c_a), veh/h	377	2279	1100	454	2279	1123	358	445		353	445	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	8.0	5.2	3.9	7.4	5.5	4.2	39.5	36.9	0.0	40.5	36.8	0.0
Incr Delay (d2), s/veh	0.1	0.5	0.0	0.2	0.6	0.2	0.3	0.3	0.0	0.5	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.1	0.1	0.1	2.5	0.6	1.1	1.4	0.0	1.6	1.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.1	5.7	3.9	7.5	6.0	4.4	39.8	37.2	0.0	41.0	37.1	0.0
LnGrp LOS	A	A	A	A	A	A	D	D		D	D	
Approach Vol, veh/h		907			1124			118	A		137	A
Approach Delay, s/veh		5.7			5.9			38.3			39.2	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	71.4	18.6	71.4	18.6
Change Period (Y+Rc), s	* 7.6	* 8.6	* 7.6	* 8.6
Max Green Setting (Gmax), s	* 52	* 21	* 52	* 21
Max Q Clear Time (g_c+I1), s	13.3	8.0	14.1	9.9
Green Ext Time (p_c), s	4.2	0.1	3.5	0.1

Intersection Summary	
HCM 6th Ctrl Delay	9.5
HCM 6th LOS	A

Notes

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

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

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

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	62	85	962	113	110	757
Future Vol, veh/h	62	85	962	113	110	757
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	14	2	2	14
Mvmt Flow	71	98	1106	130	126	870

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1794	554	0	0	1237	0
Stage 1	1107	-	-	-	-	-
Stage 2	687	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	72	476	-	-	559	-
Stage 1	278	-	-	-	-	-
Stage 2	461	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 56	476	-	-	558	-
Mov Cap-2 Maneuver	168	-	-	-	-	-
Stage 1	278	-	-	-	-	-
Stage 2	357	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.8	0	1.7
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	168	476	558	-
HCM Lane V/C Ratio	-	-	0.424	0.205	0.227	-
HCM Control Delay (s)	-	-	41.4	14.5	13.3	-
HCM Lane LOS	-	-	E	B	B	-
HCM 95th %tile Q(veh)	-	-	1.9	0.8	0.9	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	15	340	10	5	10	280	1082	10	10	803	64
Future Volume (veh/h)	105	15	340	10	5	10	280	1082	10	10	803	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1693	1870	1870	1693	1870
Adj Flow Rate, veh/h	115	16	4	11	5	0	308	1189	6	11	882	26
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	14	2	2	14	2
Cap, veh/h	143	20	144	23	10	29	438	1831	902	252	1520	748
Arrive On Green	0.09	0.09	0.09	0.02	0.02	0.00	0.11	0.57	0.57	0.01	0.47	0.47
Sat Flow, veh/h	1573	219	1585	1243	565	1585	1781	3216	1584	1781	3216	1583
Grp Volume(v), veh/h	131	0	4	16	0	0	308	1189	6	11	882	26
Grp Sat Flow(s),veh/h/ln	1792	0	1585	1808	0	1585	1781	1608	1584	1781	1608	1583
Q Serve(g_s), s	6.5	0.0	0.2	0.8	0.0	0.0	7.5	22.7	0.1	0.3	17.9	0.8
Cycle Q Clear(g_c), s	6.5	0.0	0.2	0.8	0.0	0.0	7.5	22.7	0.1	0.3	17.9	0.8
Prop In Lane	0.88		1.00	0.69		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	163	0	144	33	0	29	438	1831	902	252	1520	748
V/C Ratio(X)	0.80	0.00	0.03	0.48	0.00	0.00	0.70	0.65	0.01	0.04	0.58	0.03
Avail Cap(c_a), veh/h	193	0	171	189	0	166	503	1831	902	391	1520	748
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.1	0.0	37.3	43.8	0.0	0.0	13.1	13.2	8.4	13.1	17.2	12.7
Incr Delay (d2), s/veh	15.6	0.0	0.0	4.0	0.0	0.0	2.7	1.8	0.0	0.0	1.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	0.1	0.4	0.0	0.0	2.5	6.8	0.0	0.1	5.9	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.7	0.0	37.3	47.7	0.0	0.0	15.8	15.0	8.4	13.1	18.9	12.8
LnGrp LOS	E	A	D	D	A	A	B	B	A	B	B	B
Approach Vol, veh/h		135			16			1503			919	
Approach Delay, s/veh		55.2			47.7			15.2			18.6	
Approach LOS		E			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	59.3		14.5	16.7	50.5		8.2				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 35		* 9.7	* 13	* 30		9.4				
Max Q Clear Time (g_c+I1), s	2.3	24.7		8.5	9.5	19.9		2.8				
Green Ext Time (p_c), s	0.0	3.6		0.0	0.1	2.6		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		18.7	
HCM 6th LOS		B	

Notes

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

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

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	128	122	15	20	15
Future Vol, veh/h	25	128	122	15	20	15
Conflicting Peds, #/hr	4	0	0	4	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	300	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	139	133	16	22	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	153	0	-	0	330	137
Stage 1	-	-	-	-	137	-
Stage 2	-	-	-	-	193	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1428	-	-	-	665	911
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	840	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1423	-	-	-	647	908
Mov Cap-2 Maneuver	-	-	-	-	647	-
Stage 1	-	-	-	-	870	-
Stage 2	-	-	-	-	837	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1423	-	-	-	647	908
HCM Lane V/C Ratio	0.019	-	-	-	0.034	0.018
HCM Control Delay (s)	7.6	-	-	-	10.8	9
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	537	15	29	527	74	10	20	24	85	30	20
Future Volume (veh/h)	10	537	15	29	527	74	10	20	24	85	30	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1633	1870	1870	1648	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	617	8	33	606	41	11	23	0	98	34	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	18	2	2	17	2	2	2	2	2	2	2
Cap, veh/h	507	1761	881	512	1777	900	270	203		279	203	
Arrive On Green	0.57	0.57	0.57	0.57	0.57	0.57	0.11	0.11	0.00	0.11	0.11	0.00
Sat Flow, veh/h	784	3103	1552	800	3131	1585	1371	1870	1585	1385	1870	1585
Grp Volume(v), veh/h	11	617	8	33	606	41	11	23	0	98	34	0
Grp Sat Flow(s),veh/h/ln	784	1552	1552	800	1566	1585	1371	1870	1585	1385	1870	1585
Q Serve(g_s), s	0.4	5.4	0.1	1.2	5.2	0.6	0.4	0.6	0.0	3.4	0.8	0.0
Cycle Q Clear(g_c), s	5.6	5.4	0.1	6.5	5.2	0.6	1.2	0.6	0.0	4.0	0.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	507	1761	881	512	1777	900	270	203		279	203	
V/C Ratio(X)	0.02	0.35	0.01	0.06	0.34	0.05	0.04	0.11		0.35	0.17	
Avail Cap(c_a), veh/h	507	1761	881	512	1777	900	379	352		389	352	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.3	5.8	4.7	7.6	5.8	4.8	20.8	20.1	0.0	21.9	20.2	0.0
Incr Delay (d2), s/veh	0.1	0.6	0.0	0.2	0.5	0.1	0.0	0.1	0.0	0.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.9	0.0	0.2	0.9	0.1	0.1	0.2	0.0	1.0	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.4	6.4	4.7	7.8	6.3	4.9	20.8	20.2	0.0	22.2	20.4	0.0
LnGrp LOS	A	A	A	A	A	A	C	C		C	C	
Approach Vol, veh/h		636			680			34	A		132	A
Approach Delay, s/veh		6.4			6.3			20.4			21.7	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.0		14.0		36.0		14.0				
Change Period (Y+Rc), s		* 7.6		* 8.6		* 7.6		* 8.6				
Max Green Setting (Gmax), s		* 24		* 9.4		* 24		* 9.4				
Max Q Clear Time (g_c+I1), s		8.5		3.2		7.6		6.0				
Green Ext Time (p_c), s		2.1		0.0		2.1		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	8.0
HCM 6th LOS	A

Notes

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

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

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

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	59	101	529	52	64	582
Future Vol, veh/h	59	101	529	52	64	582
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	17	2	2	18
Mvmt Flow	66	112	588	58	71	647

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1055	295	0	0	647	0
Stage 1	589	-	-	-	-	-
Stage 2	466	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	221	701	-	-	934	-
Stage 1	517	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	204	700	-	-	933	-
Mov Cap-2 Maneuver	337	-	-	-	-	-
Stage 1	516	-	-	-	-	-
Stage 2	553	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.7	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	337	700	933	-
HCM Lane V/C Ratio	-	-	0.195	0.16	0.076	-
HCM Control Delay (s)	-	-	18.2	11.1	9.2	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.6	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	5	150	10	5	10	130	486	10	5	747	120
Future Volume (veh/h)	68	5	150	10	5	10	130	486	10	5	747	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1648	1870	1870	1633	1870
Adj Flow Rate, veh/h	80	6	0	12	6	0	153	572	6	6	879	62
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	17	2	2	18	2
Cap, veh/h	103	8	98	24	12	31	418	1984	984	547	1813	926
Arrive On Green	0.06	0.06	0.00	0.02	0.02	0.00	0.05	0.63	0.63	0.01	0.58	0.58
Sat Flow, veh/h	1663	125	1585	1207	603	1585	1781	3131	1552	1781	3103	1585
Grp Volume(v), veh/h	86	0	0	18	0	0	153	572	6	6	879	62
Grp Sat Flow(s),veh/h/ln	1787	0	1585	1810	0	1585	1781	1566	1552	1781	1552	1585
Q Serve(g_s), s	4.7	0.0	0.0	1.0	0.0	0.0	3.4	8.2	0.1	0.1	16.4	1.7
Cycle Q Clear(g_c), s	4.7	0.0	0.0	1.0	0.0	0.0	3.4	8.2	0.1	0.1	16.4	1.7
Prop In Lane	0.93		1.00	0.67		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	111	0	98	36	0	31	418	1984	984	547	1813	926
V/C Ratio(X)	0.78	0.00	0.00	0.51	0.00	0.00	0.37	0.29	0.01	0.01	0.48	0.07
Avail Cap(c_a), veh/h	245	0	217	243	0	212	552	1984	984	679	1813	926
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	0.0	0.0	48.5	0.0	0.0	9.0	8.2	6.7	8.4	12.1	9.0
Incr Delay (d2), s/veh	4.3	0.0	0.0	4.1	0.0	0.0	0.2	0.4	0.0	0.0	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	0.5	0.0	0.0	1.0	2.3	0.0	0.0	4.8	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	0.0	0.0	52.6	0.0	0.0	9.2	8.6	6.7	8.4	13.0	9.1
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	B	A
Approach Vol, veh/h		86			18			731			947	
Approach Delay, s/veh		50.6			52.6			8.7			12.7	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	71.4		12.5	12.5	66.4		8.6				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 37		* 14	* 13	* 32		13.4				
Max Q Clear Time (g_c+I1), s	2.1	10.2		6.7	5.4	18.4		3.0				
Green Ext Time (p_c), s	0.0	2.0		0.1	0.1	3.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		13.3
HCM 6th LOS		B

Notes

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

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

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	60	56	12	51	0	49	0	21	10	0	15
Future Vol, veh/h	5	60	56	12	51	0	49	0	21	10	0	15
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	300	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	92	92	80	80	92	92	92	80	92	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	75	61	13	64	0	53	0	23	13	0	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	68	0	0	136	0	0	218	212	106	223	242	68
Stage 1	-	-	-	-	-	-	118	118	-	94	94	-
Stage 2	-	-	-	-	-	-	100	94	-	129	148	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1533	-	-	1448	-	-	738	685	948	733	660	995
Stage 1	-	-	-	-	-	-	887	798	-	913	817	-
Stage 2	-	-	-	-	-	-	906	817	-	875	775	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1527	-	-	1448	-	-	717	673	948	706	649	991
Mov Cap-2 Maneuver	-	-	-	-	-	-	717	673	-	706	649	-
Stage 1	-	-	-	-	-	-	883	795	-	906	806	-
Stage 2	-	-	-	-	-	-	881	806	-	851	772	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1.3	10.2	9.3
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	774	1527	-	-	1448	-	-	706	991
HCM Lane V/C Ratio	0.098	0.004	-	-	0.009	-	-	0.018	0.019
HCM Control Delay (s)	10.2	7.4	-	-	7.5	0	-	10.2	8.7
HCM Lane LOS	B	A	-	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1	0.1

Intersection	
Int Delay, s/veh	19.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	5	18	179	9	83	19	482	70	49	577	15
Future Vol, veh/h	16	5	18	179	9	83	19	482	70	49	577	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	100	-	-	100	-	100	100	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	17	2	2	18	2
Mvmt Flow	17	5	20	195	10	90	21	524	76	53	627	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1042	1375	314	988	1315	262	643	0	0	600	0	0
Stage 1	733	733	-	566	566	-	-	-	-	-	-	-
Stage 2	309	642	-	422	749	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	184	144	682	201	157	737	938	-	-	973	-	-
Stage 1	378	424	-	476	506	-	-	-	-	-	-	-
Stage 2	676	467	-	580	417	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	144	133	682	~ 178	145	737	938	-	-	973	-	-
Mov Cap-2 Maneuver	144	133	-	~ 178	145	-	-	-	-	-	-	-
Stage 1	370	401	-	466	495	-	-	-	-	-	-	-
Stage 2	569	457	-	525	394	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24.9	102.4	0.3	0.7
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	938	-	-	223	178	527	973	-	-
HCM Lane V/C Ratio	0.022	-	-	0.19	1.093	0.19	0.055	-	-
HCM Control Delay (s)	8.9	-	-	24.9	148.1	13.4	8.9	-	-
HCM Lane LOS	A	-	-	C	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	9.6	0.7	0.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	48	42	529	35	25	749
Future Vol, veh/h	48	42	529	35	25	749
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	17	2	2	18
Mvmt Flow	52	46	575	38	27	814

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1055	307	0	0	613	0
Stage 1	594	-	-	-	-	-
Stage 2	461	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	221	689	-	-	962	-
Stage 1	514	-	-	-	-	-
Stage 2	601	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	215	689	-	-	962	-
Mov Cap-2 Maneuver	347	-	-	-	-	-
Stage 1	514	-	-	-	-	-
Stage 2	584	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.2	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	452	962	-
HCM Lane V/C Ratio	-	-	0.216	0.028	-
HCM Control Delay (s)	-	-	15.2	8.9	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0.1	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	89	2	1	59	4	1
Future Vol, veh/h	89	2	1	59	4	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	97	2	1	64	4	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	99	0	164	98
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	66	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1494	-	827	958
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	957	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1494	-	826	958
Mov Cap-2 Maneuver	-	-	-	-	826	-
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	956	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	849	-	-	1494	-
HCM Lane V/C Ratio	0.006	-	-	0.001	-
HCM Control Delay (s)	9.3	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	924	40	28	973	187	45	60	46	93	55	20
Future Volume (veh/h)	10	924	40	28	973	187	45	60	46	93	55	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1693	1870	1870	1693	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	1038	30	31	1093	154	51	67	0	104	62	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	14	2	2	14	2	2	2	2	2	2	2
Cap, veh/h	315	2213	1068	365	2213	1091	217	247		213	247	
Arrive On Green	0.69	0.69	0.69	0.69	0.69	0.69	0.13	0.13	0.00	0.13	0.13	0.00
Sat Flow, veh/h	446	3216	1552	528	3216	1585	1340	1870	1585	1334	1870	1585
Grp Volume(v), veh/h	11	1038	30	31	1093	154	51	67	0	104	62	0
Grp Sat Flow(s),veh/h/ln	446	1608	1552	528	1608	1585	1340	1870	1585	1334	1870	1585
Q Serve(g_s), s	1.1	13.4	0.6	2.6	14.5	3.0	3.2	2.9	0.0	6.9	2.7	0.0
Cycle Q Clear(g_c), s	15.5	13.4	0.6	16.0	14.5	3.0	5.9	2.9	0.0	9.8	2.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	315	2213	1068	365	2213	1091	217	247		213	247	
V/C Ratio(X)	0.03	0.47	0.03	0.08	0.49	0.14	0.24	0.27		0.49	0.25	
Avail Cap(c_a), veh/h	315	2213	1068	365	2213	1091	359	445		354	445	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.3	6.5	4.5	10.1	6.6	4.8	37.7	35.2	0.0	39.6	35.1	0.0
Incr Delay (d2), s/veh	0.2	0.7	0.0	0.5	0.8	0.3	0.2	0.2	0.0	0.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.1	0.1	0.3	3.4	0.7	1.0	1.3	0.0	2.3	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.5	7.2	4.5	10.6	7.4	5.1	37.9	35.4	0.0	40.2	35.3	0.0
LnGrp LOS	B	A	A	B	A	A	D	D		D	D	
Approach Vol, veh/h		1079			1278			118	A		166	A
Approach Delay, s/veh		7.1			7.2			36.5			38.4	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		69.5		20.5		69.5		20.5				
Change Period (Y+Rc), s		* 7.6		* 8.6		* 7.6		* 8.6				
Max Green Setting (Gmax), s		* 52		* 21		* 52		* 21				
Max Q Clear Time (g_c+I1), s		18.0		7.9		17.5		11.8				
Green Ext Time (p_c), s		5.1		0.1		4.4		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		10.5
HCM 6th LOS		B

Notes

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

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

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

Intersection	
Int Delay, s/veh	4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	72	120	1068	184	159	904
Future Vol, veh/h	72	120	1068	184	159	904
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	14	2	2	14
Mvmt Flow	83	138	1228	211	183	1039

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2115	615	0	0	1440	0
Stage 1	1229	-	-	-	-	-
Stage 2	886	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	~ 44	434	-	-	467	-
Stage 1	239	-	-	-	-	-
Stage 2	363	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 27	434	-	-	467	-
Mov Cap-2 Maneuver	117	-	-	-	-	-
Stage 1	239	-	-	-	-	-
Stage 2	221	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	44	0	2.6
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	117	434	467	-
HCM Lane V/C Ratio	-	-	0.707	0.318	0.391	-
HCM Control Delay (s)	-	-	88.8	17.1	17.6	-
HCM Lane LOS	-	-	F	C	C	-
HCM 95th %tile Q(veh)	-	-	3.8	1.3	1.8	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	15	340	10	5	10	280	1288	10	10	951	120
Future Volume (veh/h)	182	15	340	10	5	10	280	1288	10	10	951	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1693	1870	1870	1693	1870
Adj Flow Rate, veh/h	200	16	7	11	5	0	308	1415	6	11	1045	47
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	14	2	2	14	2
Cap, veh/h	178	14	171	23	10	29	374	1778	875	180	1455	716
Arrive On Green	0.11	0.11	0.11	0.02	0.02	0.00	0.11	0.55	0.55	0.01	0.45	0.45
Sat Flow, veh/h	1655	132	1585	1243	565	1585	1781	3216	1584	1781	3216	1583
Grp Volume(v), veh/h	216	0	7	16	0	0	308	1415	6	11	1045	47
Grp Sat Flow(s),veh/h/ln	1788	0	1585	1808	0	1585	1781	1608	1584	1781	1608	1583
Q Serve(g_s), s	9.7	0.0	0.4	0.8	0.0	0.0	7.8	31.6	0.2	0.3	23.7	1.5
Cycle Q Clear(g_c), s	9.7	0.0	0.4	0.8	0.0	0.0	7.8	31.6	0.2	0.3	23.7	1.5
Prop In Lane	0.93		1.00	0.69		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	193	0	171	33	0	29	374	1778	875	180	1455	716
V/C Ratio(X)	1.12	0.00	0.04	0.48	0.00	0.00	0.82	0.80	0.01	0.06	0.72	0.07
Avail Cap(c_a), veh/h	193	0	171	189	0	166	433	1778	875	318	1455	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	0.0	36.0	43.8	0.0	0.0	16.8	16.1	9.0	15.8	20.0	13.9
Incr Delay (d2), s/veh	101.1	0.0	0.0	4.0	0.0	0.0	9.4	3.8	0.0	0.1	3.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.6	0.0	0.1	0.4	0.0	0.0	3.4	10.0	0.0	0.1	8.1	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	141.3	0.0	36.0	47.7	0.0	0.0	26.2	19.9	9.0	15.9	23.1	14.1
LnGrp LOS	F	A	D	D	A	A	C	B	A	B	C	B
Approach Vol, veh/h		223			16			1729			1103	
Approach Delay, s/veh		138.0			47.7			21.0			22.6	
Approach LOS		F			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	57.7		16.0	17.0	48.7		8.2				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 35		* 9.7	* 13	* 30		9.4				
Max Q Clear Time (g_c+I1), s	2.3	33.6		11.7	9.8	25.7		2.8				
Green Ext Time (p_c), s	0.0	0.9		0.0	0.1	1.9		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		30.2
HCM 6th LOS		C

Notes

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

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

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	133	115	25	125	15	42	0	18	20	0	15
Future Vol, veh/h	25	133	115	25	125	15	42	0	18	20	0	15
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	300	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	145	125	27	136	16	46	0	20	22	0	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	156	0	0	270	0	0	468	472	208	466	518	140
Stage 1	-	-	-	-	-	-	262	262	-	194	194	-
Stage 2	-	-	-	-	-	-	206	210	-	272	324	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1424	-	-	1293	-	-	505	490	832	507	462	908
Stage 1	-	-	-	-	-	-	743	691	-	808	740	-
Stage 2	-	-	-	-	-	-	796	728	-	734	650	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1419	-	-	1293	-	-	480	468	832	478	441	905
Mov Cap-2 Maneuver	-	-	-	-	-	-	480	468	-	478	441	-
Stage 1	-	-	-	-	-	-	729	678	-	789	720	-
Stage 2	-	-	-	-	-	-	764	708	-	703	638	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	1.2	12.4	11.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	550	1419	-	-	1293	-	-	478	905
HCM Lane V/C Ratio	0.119	0.019	-	-	0.021	-	-	0.045	0.018
HCM Control Delay (s)	12.4	7.6	-	-	7.8	0	-	12.9	9.1
HCM Lane LOS	B	A	-	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-	-	0.1	0.1

Intersection	
Int Delay, s/veh	315.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	10	32	153	7	71	17	1156	142	98	864	14
Future Vol, veh/h	25	10	32	153	7	71	17	1156	142	98	864	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	100	-	-	100	-	100	100	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	14	2	2	14	2
Mvmt Flow	27	11	35	166	8	77	18	1257	154	107	939	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1822	2600	470	1982	2461	629	954	0	0	1411	0	0
Stage 1	1153	1153	-	1293	1293	-	-	-	-	-	-	-
Stage 2	669	1447	-	689	1168	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	48	24	540	~ 36	30	425	716	-	-	479	-	-
Stage 1	210	270	-	172	231	-	-	-	-	-	-	-
Stage 2	413	195	-	402	266	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 24	18	540	~ 15	23	425	716	-	-	479	-	-
Mov Cap-2 Maneuver	~ 24	18	-	~ 15	23	-	-	-	-	-	-	-
Stage 1	205	210	-	168	225	-	-	-	-	-	-	-
Stage 2	318	190	-	277	207	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 608	$ 3350.5	0.1	1.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	716	-	-	40	15	165	479	-	-
HCM Lane V/C Ratio	0.026	-	-	1.821	11.087	0.514	0.222	-	-
HCM Control Delay (s)	10.2	-	-	$ 608	$ 5034.2	47.9	14.7	-	-
HCM Lane LOS	B	-	-	F	F	E	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	7.7	21.8	2.5	0.8	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	35	1280	70	49	1000
Future Vol, veh/h	41	35	1280	70	49	1000
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	14	2	2	14
Mvmt Flow	45	38	1391	76	53	1087

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2041	696	0	0	1467	0
Stage 1	1391	-	-	-	-	-
Stage 2	650	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	49	384	-	-	456	-
Stage 1	196	-	-	-	-	-
Stage 2	481	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 43	384	-	-	456	-
Mov Cap-2 Maneuver	139	-	-	-	-	-
Stage 1	196	-	-	-	-	-
Stage 2	425	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	35.9	0	0.7
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	197	456	-
HCM Lane V/C Ratio	-	-	0.419	0.117	-
HCM Control Delay (s)	-	-	35.9	13.9	-
HCM Lane LOS	-	-	E	B	-
HCM 95th %tile Q(veh)	-	-	1.9	0.4	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	166	5	1	162	3	1
Future Vol, veh/h	166	5	1	162	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	180	5	1	176	3	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	185	0	361	183
Stage 1	-	-	-	-	183	-
Stage 2	-	-	-	-	178	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1390	-	638	859
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	853	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1390	-	637	859
Mov Cap-2 Maneuver	-	-	-	-	637	-
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	852	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	681	-	-	1390	-
HCM Lane V/C Ratio	0.006	-	-	0.001	-
HCM Control Delay (s)	10.3	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	537	15	29	527	74	10	20	24	85	30	20
Future Volume (veh/h)	10	537	15	29	527	74	10	20	24	85	30	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1633	1870	1870	1648	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	617	8	33	606	41	11	23	0	98	34	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	18	2	2	17	2	2	2	2	2	2	2
Cap, veh/h	589	1761	881	512	1777	900	270	203		279	203	
Arrive On Green	0.57	0.57	0.57	1.00	1.00	1.00	0.11	0.11	0.00	0.11	0.11	0.00
Sat Flow, veh/h	784	3103	1552	800	3131	1585	1371	1870	1585	1385	1870	1585
Grp Volume(v), veh/h	11	617	8	33	606	41	11	23	0	98	34	0
Grp Sat Flow(s),veh/h/ln	784	1552	1552	800	1566	1585	1371	1870	1585	1385	1870	1585
Q Serve(g_s), s	0.3	5.4	0.1	0.4	0.0	0.0	0.4	0.6	0.0	3.4	0.8	0.0
Cycle Q Clear(g_c), s	0.3	5.4	0.1	5.8	0.0	0.0	1.2	0.6	0.0	4.0	0.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	589	1761	881	512	1777	900	270	203		279	203	
V/C Ratio(X)	0.02	0.35	0.01	0.06	0.34	0.05	0.04	0.11		0.35	0.17	
Avail Cap(c_a), veh/h	589	1761	881	512	1777	900	379	352		389	352	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	4.7	5.8	4.7	0.5	0.0	0.0	20.8	20.1	0.0	21.9	20.2	0.0
Incr Delay (d2), s/veh	0.1	0.6	0.0	0.2	0.5	0.1	0.0	0.1	0.0	0.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.9	0.0	0.0	0.1	0.0	0.1	0.2	0.0	1.0	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.8	6.4	4.7	0.8	0.5	0.1	20.8	20.2	0.0	22.2	20.4	0.0
LnGrp LOS	A	A	A	A	A	A	C	C		C	C	
Approach Vol, veh/h		636			680			34	A		132	A
Approach Delay, s/veh		6.3			0.5			20.4			21.7	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.0		14.0		36.0		14.0				
Change Period (Y+Rc), s		* 7.6		* 8.6		* 7.6		* 8.6				
Max Green Setting (Gmax), s		* 24		* 9.4		* 24		* 9.4				
Max Q Clear Time (g_c+I1), s		7.8		3.2		7.4		6.0				
Green Ext Time (p_c), s		2.2		0.0		2.1		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		5.4
HCM 6th LOS		A

Notes

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

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

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

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	47	101	529	52	64	582
Future Vol, veh/h	47	101	529	52	64	582
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	17	2	2	18
Mvmt Flow	52	112	588	58	71	647

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1055	295	0	0	647	0
Stage 1	589	-	-	-	-	-
Stage 2	466	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	221	701	-	-	934	-
Stage 1	517	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	204	700	-	-	933	-
Mov Cap-2 Maneuver	337	-	-	-	-	-
Stage 1	516	-	-	-	-	-
Stage 2	553	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	337	700	933	-
HCM Lane V/C Ratio	-	-	0.155	0.16	0.076	-
HCM Control Delay (s)	-	-	17.6	11.1	9.2	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.6	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	5	150	10	5	10	130	486	10	5	747	120
Future Volume (veh/h)	68	5	150	10	5	10	130	486	10	5	747	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1648	1870	1870	1633	1870
Adj Flow Rate, veh/h	80	6	0	12	6	0	153	572	6	6	879	62
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	17	2	2	18	2
Cap, veh/h	103	8	98	24	12	31	418	1984	984	547	1813	926
Arrive On Green	0.06	0.06	0.00	0.02	0.02	0.00	0.05	0.63	0.63	0.01	0.58	0.58
Sat Flow, veh/h	1663	125	1585	1207	603	1585	1781	3131	1552	1781	3103	1585
Grp Volume(v), veh/h	86	0	0	18	0	0	153	572	6	6	879	62
Grp Sat Flow(s),veh/h/ln	1787	0	1585	1810	0	1585	1781	1566	1552	1781	1552	1585
Q Serve(g_s), s	4.7	0.0	0.0	1.0	0.0	0.0	3.4	8.2	0.1	0.1	16.4	1.7
Cycle Q Clear(g_c), s	4.7	0.0	0.0	1.0	0.0	0.0	3.4	8.2	0.1	0.1	16.4	1.7
Prop In Lane	0.93		1.00	0.67		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	111	0	98	36	0	31	418	1984	984	547	1813	926
V/C Ratio(X)	0.78	0.00	0.00	0.51	0.00	0.00	0.37	0.29	0.01	0.01	0.48	0.07
Avail Cap(c_a), veh/h	245	0	217	243	0	212	552	1984	984	679	1813	926
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	0.0	0.0	48.5	0.0	0.0	9.0	8.2	6.7	8.4	12.1	9.0
Incr Delay (d2), s/veh	4.3	0.0	0.0	4.1	0.0	0.0	0.2	0.4	0.0	0.0	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	0.5	0.0	0.0	1.0	2.3	0.0	0.0	4.8	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	0.0	0.0	52.6	0.0	0.0	9.2	8.6	6.7	8.4	13.0	9.1
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	B	A
Approach Vol, veh/h		86			18			731			947	
Approach Delay, s/veh		50.6			52.6			8.7			12.7	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	71.4		12.5	12.5	66.4		8.6				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 37		* 14	* 13	* 32		13.4				
Max Q Clear Time (g_c+I1), s	2.1	10.2		6.7	5.4	18.4		3.0				
Green Ext Time (p_c), s	0.0	2.0		0.1	0.1	3.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		13.3
HCM 6th LOS		B

Notes

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

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

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	60	56	12	51	0	37	0	21	10	0	15
Future Vol, veh/h	5	60	56	12	51	0	37	0	21	10	0	15
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	300	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	92	92	80	80	92	92	92	80	92	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	75	61	13	64	0	40	0	23	13	0	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	68	0	0	136	0	0	218	212	106	223	242	68
Stage 1	-	-	-	-	-	-	118	118	-	94	94	-
Stage 2	-	-	-	-	-	-	100	94	-	129	148	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1533	-	-	1448	-	-	738	685	948	733	660	995
Stage 1	-	-	-	-	-	-	887	798	-	913	817	-
Stage 2	-	-	-	-	-	-	906	817	-	875	775	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1527	-	-	1448	-	-	717	673	948	706	649	991
Mov Cap-2 Maneuver	-	-	-	-	-	-	717	673	-	706	649	-
Stage 1	-	-	-	-	-	-	883	795	-	906	806	-
Stage 2	-	-	-	-	-	-	881	806	-	851	772	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1.3	10	9.3
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	786	1527	-	-	1448	-	-	706	991
HCM Lane V/C Ratio	0.08	0.004	-	-	0.009	-	-	0.018	0.019
HCM Control Delay (s)	10	7.4	-	-	7.5	0	-	10.2	8.7
HCM Lane LOS	B	A	-	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	5	18	239	9	83	19	482	70	49	565	15
Future Volume (veh/h)	16	5	18	239	9	83	19	482	70	49	565	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1648	1870	1870	1633	1870
Adj Flow Rate, veh/h	17	5	20	260	10	90	21	524	76	53	614	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	17	2	2	18	2
Cap, veh/h	147	55	138	370	34	309	584	2015	1020	540	1997	1020
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.64	0.64	0.64	1.00	1.00	1.00
Sat Flow, veh/h	452	257	645	1386	161	1449	796	3131	1585	819	3103	1585
Grp Volume(v), veh/h	42	0	0	260	0	100	21	524	76	53	614	16
Grp Sat Flow(s),veh/h/ln	1354	0	0	1386	0	1610	796	1566	1585	819	1552	1585
Q Serve(g_s), s	0.1	0.0	0.0	12.7	0.0	5.2	1.0	7.2	1.8	0.8	0.0	0.0
Cycle Q Clear(g_c), s	5.3	0.0	0.0	18.0	0.0	5.2	1.0	7.2	1.8	8.0	0.0	0.0
Prop In Lane	0.40		0.48	1.00		0.90	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	340	0	0	370	0	344	584	2015	1020	540	1997	1020
V/C Ratio(X)	0.12	0.00	0.00	0.70	0.00	0.29	0.04	0.26	0.07	0.10	0.31	0.02
Avail Cap(c_a), veh/h	670	0	0	680	0	703	584	2015	1020	540	1997	1020
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.7	0.0	0.0	37.9	0.0	33.0	6.5	7.6	6.7	0.4	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	2.4	0.0	0.5	0.1	0.3	0.1	0.4	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	6.3	0.0	2.1	0.1	1.9	0.5	0.1	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.9	0.0	0.0	40.4	0.0	33.4	6.6	7.9	6.8	0.8	0.4	0.0
LnGrp LOS	C	A	A	D	A	C	A	A	A	A	A	A
Approach Vol, veh/h		42			360			621			683	
Approach Delay, s/veh		31.9			38.5			7.8			0.4	
Approach LOS		C			D			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		72.3		27.7		72.3		27.7				
Change Period (Y+Rc), s		* 8		* 6.3		* 8		* 6.3				
Max Green Setting (Gmax), s		* 42		* 44		* 42		* 44				
Max Q Clear Time (g_c+I1), s		9.2		7.3		10.0		20.0				
Green Ext Time (p_c), s		3.6		0.2		4.3		1.4				

Intersection Summary		
HCM 6th Ctrl Delay		11.9
HCM 6th LOS		B

Notes

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

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	42	529	35	25	797
Future Vol, veh/h	0	42	529	35	25	797
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	17	2	2	18
Mvmt Flow	0	46	575	38	27	866

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	288	0	0	613	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	709	-	-	962	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	709	-	-	962	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	709	962	-
HCM Lane V/C Ratio	-	-	0.064	0.028	-
HCM Control Delay (s)	-	-	10.4	8.9	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	89	2	1	59	4	1
Future Vol, veh/h	89	2	1	59	4	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	97	2	1	64	4	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	99	0	164	98
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	66	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1494	-	827	958
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	957	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1494	-	826	958
Mov Cap-2 Maneuver	-	-	-	-	826	-
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	956	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	849	-	-	1494	-
HCM Lane V/C Ratio	0.006	-	-	0.001	-
HCM Control Delay (s)	9.3	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	924	40	28	973	187	45	60	46	93	55	20
Future Volume (veh/h)	10	924	40	28	973	187	45	60	46	93	55	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1693	1870	1870	1693	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	1038	30	31	1093	154	51	67	0	104	62	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	14	2	2	14	2	2	2	2	2	2	2
Cap, veh/h	255	2213	1068	365	2213	1091	217	247		213	247	
Arrive On Green	0.69	0.69	0.69	0.23	0.23	0.23	0.13	0.13	0.00	0.13	0.13	0.00
Sat Flow, veh/h	446	3216	1552	528	3216	1585	1340	1870	1585	1334	1870	1585
Grp Volume(v), veh/h	11	1038	30	31	1093	154	51	67	0	104	62	0
Grp Sat Flow(s),veh/h/ln	446	1608	1552	528	1608	1585	1340	1870	1585	1334	1870	1585
Q Serve(g_s), s	1.4	13.4	0.6	4.4	26.6	7.0	3.2	2.9	0.0	6.9	2.7	0.0
Cycle Q Clear(g_c), s	28.0	13.4	0.6	17.8	26.6	7.0	5.9	2.9	0.0	9.8	2.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	255	2213	1068	365	2213	1091	217	247		213	247	
V/C Ratio(X)	0.04	0.47	0.03	0.08	0.49	0.14	0.24	0.27		0.49	0.25	
Avail Cap(c_a), veh/h	255	2213	1068	365	2213	1091	359	445		354	445	
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.0	6.5	4.5	23.3	21.1	13.5	37.7	35.2	0.0	39.6	35.1	0.0
Incr Delay (d2), s/veh	0.3	0.7	0.0	0.5	0.8	0.3	0.2	0.2	0.0	0.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.1	0.1	0.7	11.3	2.0	1.0	1.3	0.0	2.3	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.4	7.2	4.5	23.8	21.9	13.8	37.9	35.4	0.0	40.2	35.3	0.0
LnGrp LOS	B	A	A	C	C	B	D	D		D	D	
Approach Vol, veh/h		1079			1278			118	A		166	A
Approach Delay, s/veh		7.2			21.0			36.5			38.4	
Approach LOS		A			C			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		69.5		20.5		69.5		20.5				
Change Period (Y+Rc), s		* 7.6		* 8.6		* 7.6		* 8.6				
Max Green Setting (Gmax), s		* 52		* 21		* 52		* 21				
Max Q Clear Time (g_c+I1), s		28.6		7.9		30.0		11.8				
Green Ext Time (p_c), s		4.9		0.1		4.2		0.1				

Intersection Summary		
HCM 6th Ctrl Delay	17.1	
HCM 6th LOS	B	

Notes

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

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

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

Intersection	
Int Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	62	120	1068	184	159	904
Future Vol, veh/h	62	120	1068	184	159	904
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	80	-	100	110	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	14	2	2	14
Mvmt Flow	71	138	1228	211	183	1039

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2115	615	0	0	1440	0
Stage 1	1229	-	-	-	-	-
Stage 2	886	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	~ 44	434	-	-	467	-
Stage 1	239	-	-	-	-	-
Stage 2	363	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 27	434	-	-	467	-
Mov Cap-2 Maneuver	117	-	-	-	-	-
Stage 1	239	-	-	-	-	-
Stage 2	221	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	36.8	0	2.6
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	117	434	467	-
HCM Lane V/C Ratio	-	-	0.609	0.318	0.391	-
HCM Control Delay (s)	-	-	75	17.1	17.6	-
HCM Lane LOS	-	-	F	C	C	-
HCM 95th %tile Q(veh)	-	-	3	1.3	1.8	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	15	340	10	5	10	280	1288	10	10	951	120
Future Volume (veh/h)	182	15	340	10	5	10	280	1288	10	10	951	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1693	1870	1870	1693	1870
Adj Flow Rate, veh/h	200	16	7	11	5	0	308	1415	6	11	1045	47
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	14	2	2	14	2
Cap, veh/h	178	14	171	23	10	29	374	1778	875	180	1455	716
Arrive On Green	0.11	0.11	0.11	0.02	0.02	0.00	0.11	0.55	0.55	0.01	0.45	0.45
Sat Flow, veh/h	1655	132	1585	1243	565	1585	1781	3216	1584	1781	3216	1583
Grp Volume(v), veh/h	216	0	7	16	0	0	308	1415	6	11	1045	47
Grp Sat Flow(s),veh/h/ln	1788	0	1585	1808	0	1585	1781	1608	1584	1781	1608	1583
Q Serve(g_s), s	9.7	0.0	0.4	0.8	0.0	0.0	7.8	31.6	0.2	0.3	23.7	1.5
Cycle Q Clear(g_c), s	9.7	0.0	0.4	0.8	0.0	0.0	7.8	31.6	0.2	0.3	23.7	1.5
Prop In Lane	0.93		1.00	0.69		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	193	0	171	33	0	29	374	1778	875	180	1455	716
V/C Ratio(X)	1.12	0.00	0.04	0.48	0.00	0.00	0.82	0.80	0.01	0.06	0.72	0.07
Avail Cap(c_a), veh/h	193	0	171	189	0	166	433	1778	875	318	1455	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	0.0	36.0	43.8	0.0	0.0	16.8	16.1	9.0	15.8	20.0	13.9
Incr Delay (d2), s/veh	101.1	0.0	0.0	4.0	0.0	0.0	9.4	3.8	0.0	0.1	3.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.6	0.0	0.1	0.4	0.0	0.0	3.4	10.0	0.0	0.1	8.1	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	141.3	0.0	36.0	47.7	0.0	0.0	26.2	19.9	9.0	15.9	23.1	14.1
LnGrp LOS	F	A	D	D	A	A	C	B	A	B	C	B
Approach Vol, veh/h		223			16			1729			1103	
Approach Delay, s/veh		138.0			47.7			21.0			22.6	
Approach LOS		F			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	57.7		16.0	17.0	48.7		8.2				
Change Period (Y+Rc), s	6.8	* 8		* 6.3	* 7.1	* 8		6.6				
Max Green Setting (Gmax), s	8.2	* 35		* 9.7	* 13	* 30		9.4				
Max Q Clear Time (g_c+I1), s	2.3	33.6		11.7	9.8	25.7		2.8				
Green Ext Time (p_c), s	0.0	0.9		0.0	0.1	1.9		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		30.2
HCM 6th LOS		C

Notes

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

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

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	133	115	25	125	15	32	0	18	20	0	15
Future Vol, veh/h	25	133	115	25	125	15	32	0	18	20	0	15
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	-	-	300	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	145	125	27	136	16	35	0	20	22	0	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	156	0	0	270	0	0	468	472	208	466	518	140
Stage 1	-	-	-	-	-	-	262	262	-	194	194	-
Stage 2	-	-	-	-	-	-	206	210	-	272	324	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1424	-	-	1293	-	-	505	490	832	507	462	908
Stage 1	-	-	-	-	-	-	743	691	-	808	740	-
Stage 2	-	-	-	-	-	-	796	728	-	734	650	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1419	-	-	1293	-	-	480	468	832	478	441	905
Mov Cap-2 Maneuver	-	-	-	-	-	-	480	468	-	478	441	-
Stage 1	-	-	-	-	-	-	729	678	-	789	720	-
Stage 2	-	-	-	-	-	-	764	708	-	703	638	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	1.2	12	11.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	566	1419	-	-	1293	-	-	478	905
HCM Lane V/C Ratio	0.096	0.019	-	-	0.021	-	-	0.045	0.018
HCM Control Delay (s)	12	7.6	-	-	7.8	0	-	12.9	9.1
HCM Lane LOS	B	A	-	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.1	-	-	0.1	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	10	32	204	7	71	17	1156	142	98	854	14
Future Volume (veh/h)	25	10	32	204	7	71	17	1156	142	98	854	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1693	1870	1870	1693	1870
Adj Flow Rate, veh/h	27	11	35	222	8	77	18	1257	154	107	928	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	14	2	2	14	2
Cap, veh/h	130	64	128	341	27	264	324	2122	1046	248	2122	1046
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.66	0.66	0.66	0.22	0.22	0.22
Sat Flow, veh/h	416	352	708	1360	151	1457	594	3216	1585	381	3216	1585
Grp Volume(v), veh/h	73	0	0	222	0	85	18	1257	154	107	928	15
Grp Sat Flow(s),veh/h/ln	1476	0	0	1360	0	1608	594	1608	1585	381	1608	1585
Q Serve(g_s), s	0.0	0.0	0.0	9.1	0.0	4.1	1.7	19.6	3.3	23.8	22.5	0.7
Cycle Q Clear(g_c), s	4.2	0.0	0.0	13.2	0.0	4.1	24.1	19.6	3.3	43.4	22.5	0.7
Prop In Lane	0.37		0.48	1.00		0.91	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	322	0	0	341	0	291	324	2122	1046	248	2122	1046
V/C Ratio(X)	0.23	0.00	0.00	0.65	0.00	0.29	0.06	0.59	0.15	0.43	0.44	0.01
Avail Cap(c_a), veh/h	613	0	0	604	0	602	324	2122	1046	248	2122	1046
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	0.0	0.0	35.3	0.0	31.8	16.1	8.5	5.8	38.2	20.8	12.2
Incr Delay (d2), s/veh	0.4	0.0	0.0	2.1	0.0	0.5	0.3	1.2	0.3	5.4	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	4.8	0.0	1.6	0.2	5.0	0.9	2.7	9.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.9	0.0	0.0	37.4	0.0	32.4	16.5	9.8	6.1	43.6	21.4	12.3
LnGrp LOS	C	A	A	D	A	C	B	A	A	D	C	B
Approach Vol, veh/h		73			307			1429			1050	
Approach Delay, s/veh		31.9			36.0			9.5			23.5	
Approach LOS		C			D			A			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		67.4		22.6		67.4		22.6				
Change Period (Y+Rc), s		* 8		* 6.3		* 8		* 6.3				
Max Green Setting (Gmax), s		* 42		* 34		* 42		* 34				
Max Q Clear Time (g_c+I1), s		26.1		6.2		45.4		15.2				
Green Ext Time (p_c), s		7.9		0.4		0.0		1.1				

Intersection Summary		
HCM 6th Ctrl Delay		18.1
HCM 6th LOS		B

Notes

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

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	35	1280	70	49	1041
Future Vol, veh/h	0	35	1280	70	49	1041
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	14	2	2	14
Mvmt Flow	0	38	1391	76	53	1132

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	696	0	0	1467	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	384	-	-	456	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	384	-	-	456	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.4	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	384	456	-
HCM Lane V/C Ratio	-	-	0.099	0.117	-
HCM Control Delay (s)	-	-	15.4	13.9	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.4	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	166	5	1	162	3	1
Future Vol, veh/h	166	5	1	162	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	180	5	1	176	3	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	185	0	361	183
Stage 1	-	-	-	-	183	-
Stage 2	-	-	-	-	178	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1390	-	638	859
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	853	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1390	-	637	859
Mov Cap-2 Maneuver	-	-	-	-	637	-
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	852	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	681	-	-	1390	-
HCM Lane V/C Ratio	0.006	-	-	0.001	-
HCM Control Delay (s)	10.3	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Signal Warrant Analysis

FEHR PEERS

Major Street	US-89
Minor Street	Ben Lomond Views North Access

Project	Harrisville Ben Lomond Views TIS
Scenario	2020+P Conditions
Peak Hour	AM

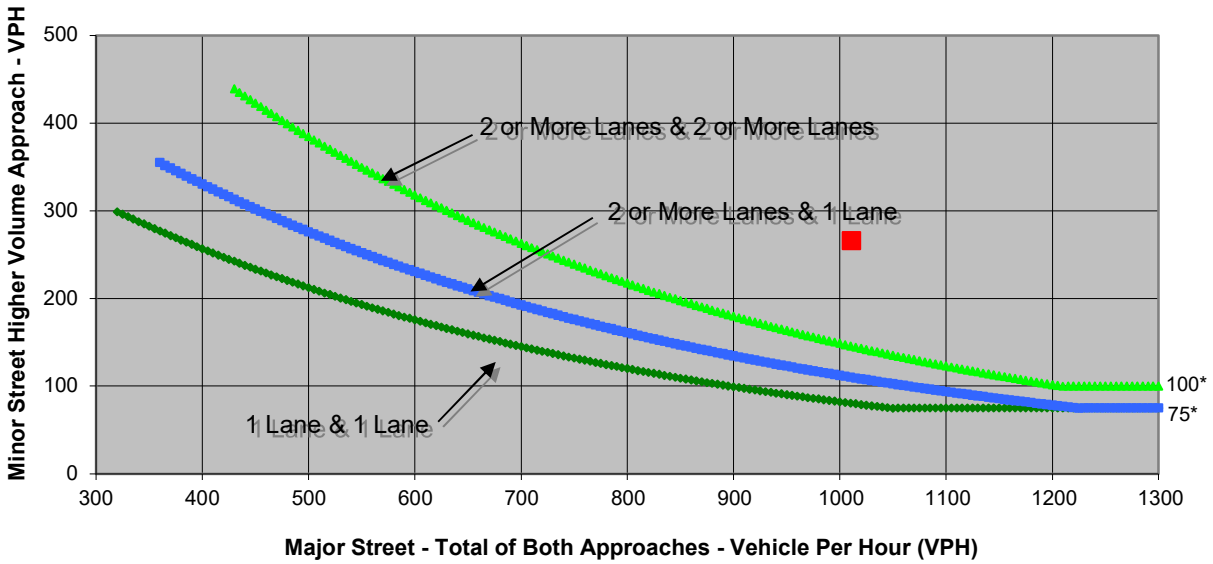
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	51	0	179
Through	409	481	0	0
Right	70	0	0	87
Total	479	532	0	266

Major Street Direction

x	North/South
	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 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 for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	US-89	Ben Lomond Views North Access	
Number of Approach Lanes	**2**	**2**	**YES**
Traffic Volume (VPH) *	**1,011**	**266**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	US-89	Project	Harrisville Ben Lomond Views TIS
Minor Street	Ben Lomond Views North Access	Scenario	2020+P Conditions
		Peak Hour	PM

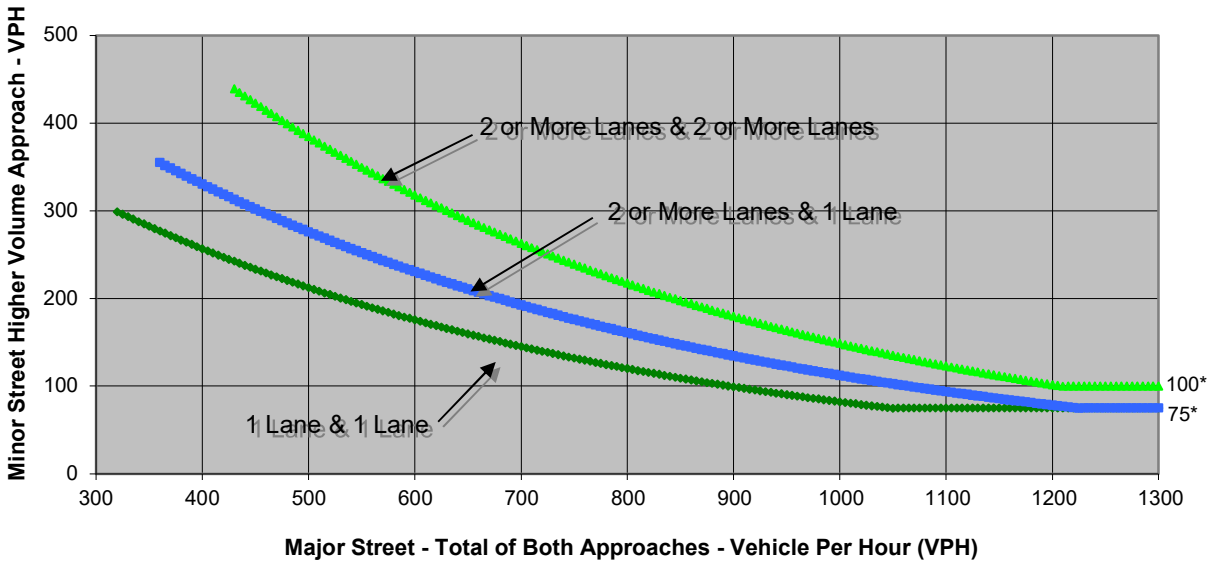
Turn Movement Volumes

	NB	SB	EB	WB
Left		104		152
Through	979	727		
Right	140			75
Total	1,119	831	0	227

Major Street Direction

x	North/South
	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 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 for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	US-89	Ben Lomond Views North Access	
Number of Approach Lanes	**2**	**2**	**YES**
Traffic Volume (VPH) *	**1,950**	**227**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	US-89
Minor Street	Ben Lomond Views North Access

Project	Harrisville Ben Lomond Views TIS
Scenario	2025+P Conditions
Peak Hour	AM

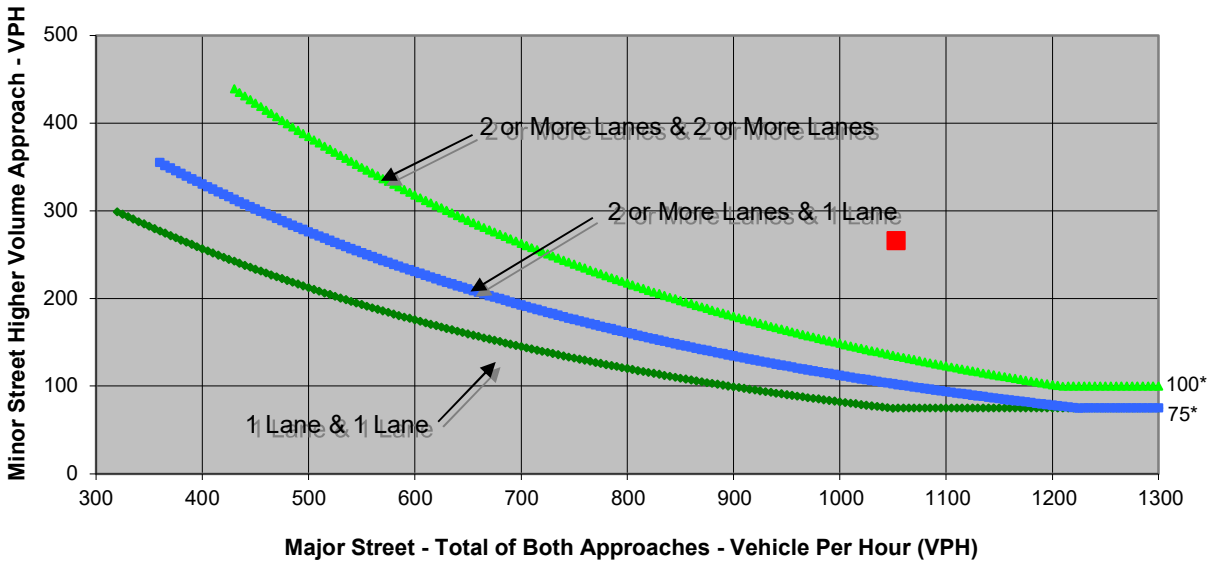
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	51	0	179
Through	424	508	0	0
Right	70	0	0	87
Total	494	559	0	266

Major Street Direction

x	North/South
	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 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 for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	US-89	Ben Lomond Views North Access	
Number of Approach Lanes	**2**	**2**	**YES**
Traffic Volume (VPH) *	**1,053**	**266**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	US-89	Project	Harrisville Ben Lomond Views TIS
Minor Street	Ben Lomond Views North Access	Scenario	2025+P Conditions
		Peak Hour	PM

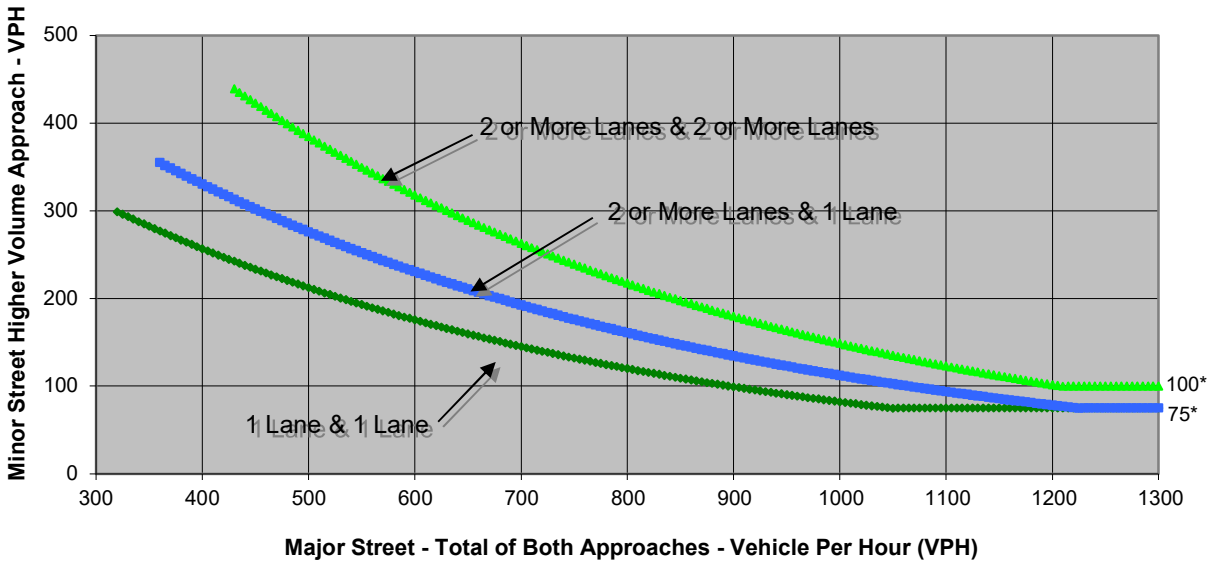
Turn Movement Volumes

	NB	SB	EB	WB
Left		104		152
Through	1,028	766		
Right	140			75
Total	1,168	870	0	227

Major Street Direction

x	North/South
	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 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 for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	US-89	Ben Lomond Views North Access	
Number of Approach Lanes	**2**	**2**	**YES**
Traffic Volume (VPH) *	**2,038**	**227**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	US-89
Minor Street	Ben Lomond Views North Access

Project	Harrisville Ben Lomond Views TIS
Scenario	2040+P Conditions
Peak Hour	AM

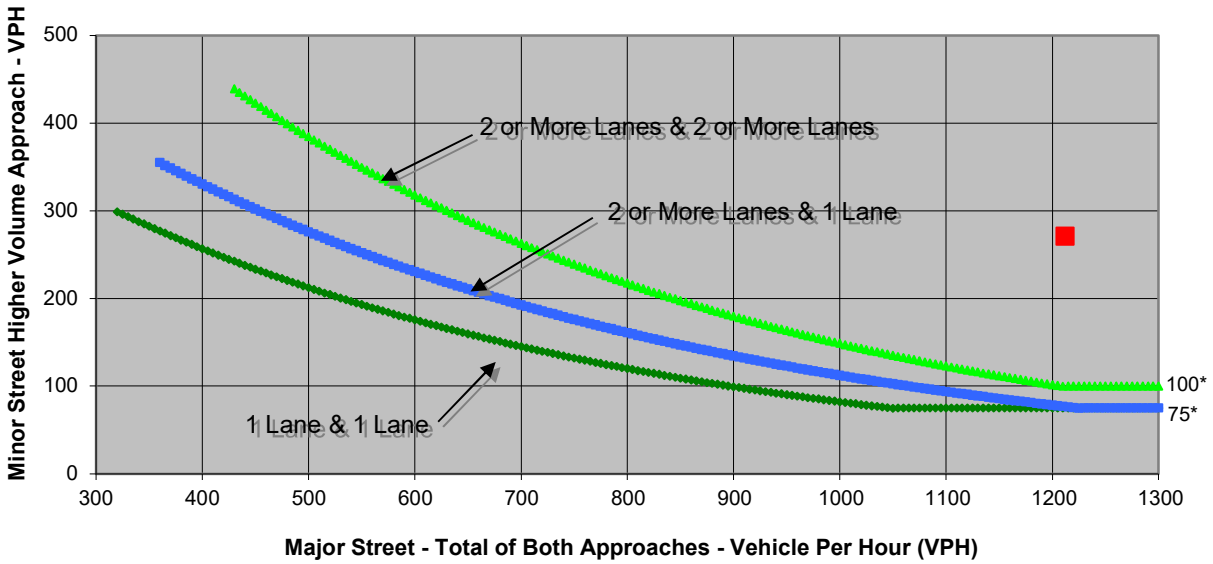
Turn Movement Volumes

	NB	SB	EB	WB
Left	19	49	16	179
Through	482	577	5	9
Right	70	15	18	83
Total	571	641	39	271

Major Street Direction

x	North/South
	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 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 for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	US-89	Ben Lomond Views North Access	
Number of Approach Lanes	**2**	**2**	**YES**
Traffic Volume (VPH) *	**1,212**	**271**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	US-89	Project	Harrisville Ben Lomond Views TIS
Minor Street	Ben Lomond Views North Access	Scenario	2040+P Conditions
		Peak Hour	PM

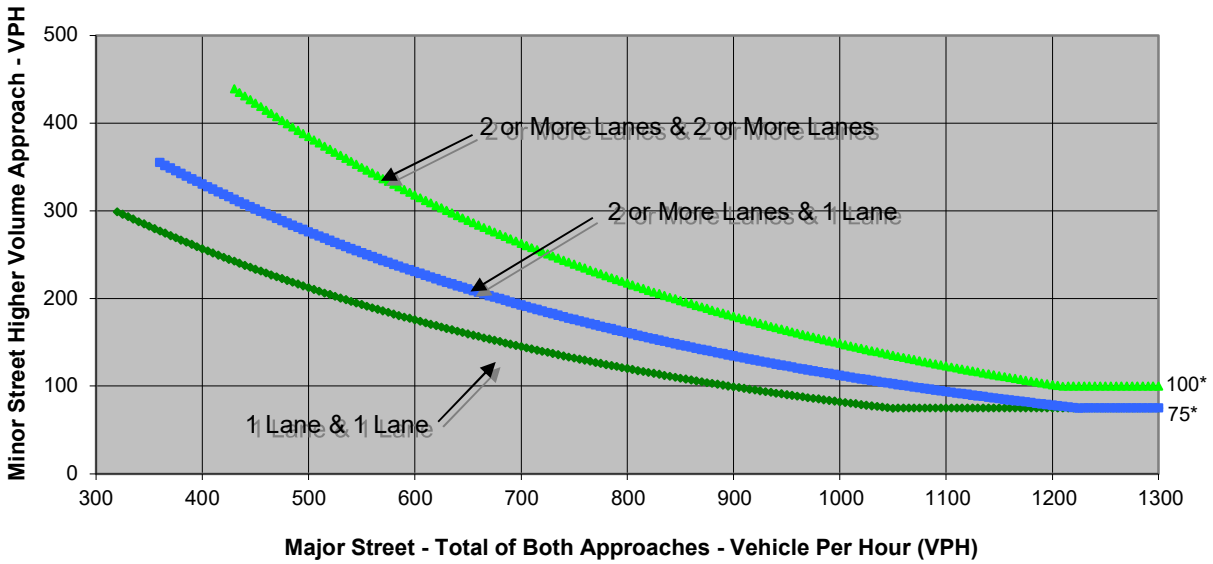
Turn Movement Volumes

	NB	SB	EB	WB
Left	17	98	25	153
Through	1,156	864	10	7
Right	142	14	32	71
Total	1,315	976	67	231

Major Street Direction

x	North/South
	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 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 for a minor-street approach with one lane.

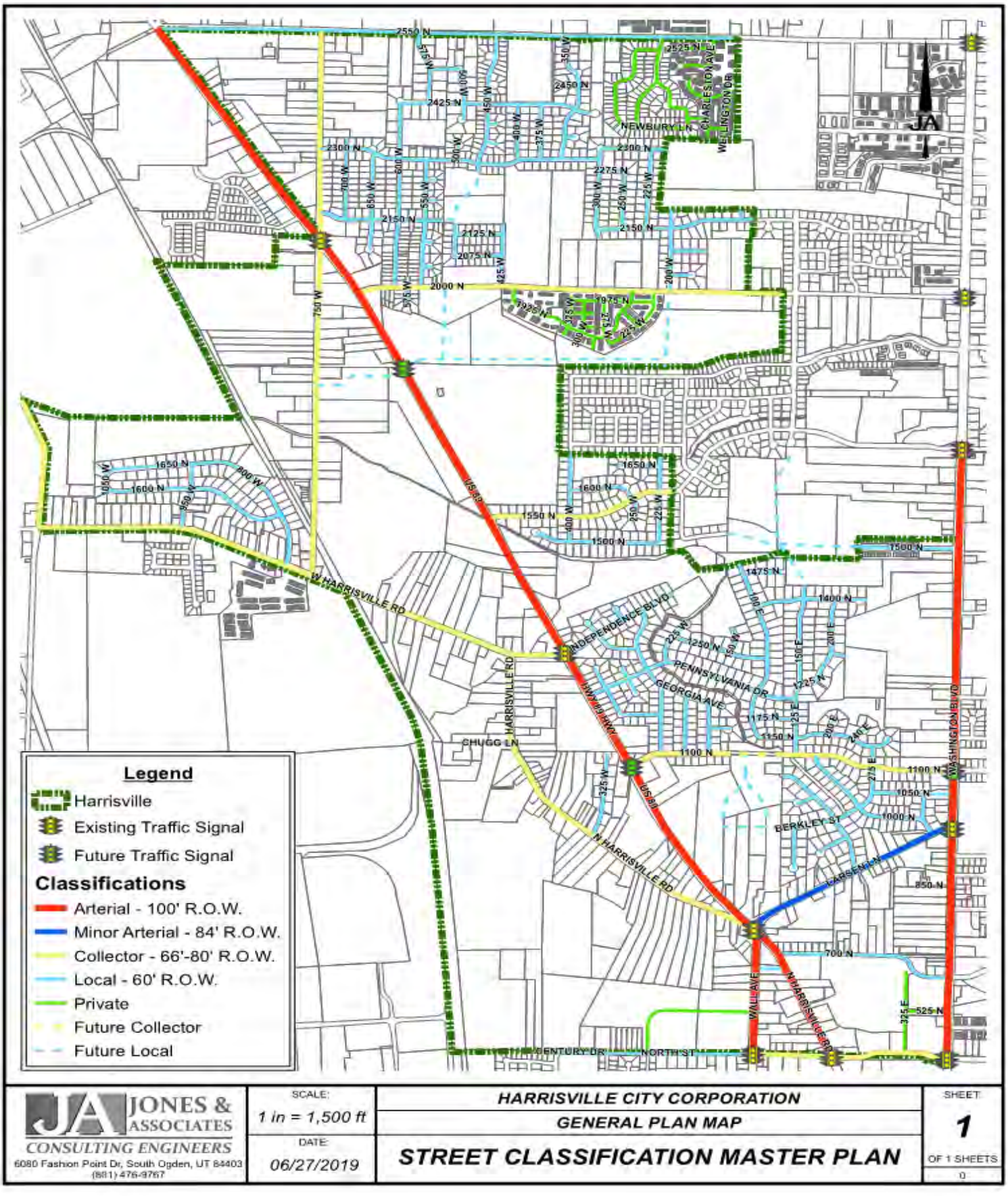
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	US-89	Ben Lomond Views North Access	
Number of Approach Lanes	**2**	**2**	**YES**
Traffic Volume (VPH) *	**2,291**	**231**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Exhibit E-3

FUTURE TRANSPORTATION MAP



JONES & ASSOCIATES CONSULTING ENGINEERS 6080 Fashion Point Dr, South Ogden, UT 84403 (801) 476-9767	SCALE: 1 in = 1,500 ft	HARRISVILLE CITY CORPORATION GENERAL PLAN MAP	SHEET: 1
	DATE: 06/27/2019	STREET CLASSIFICATION MASTER PLAN	OF 1 SHEETS

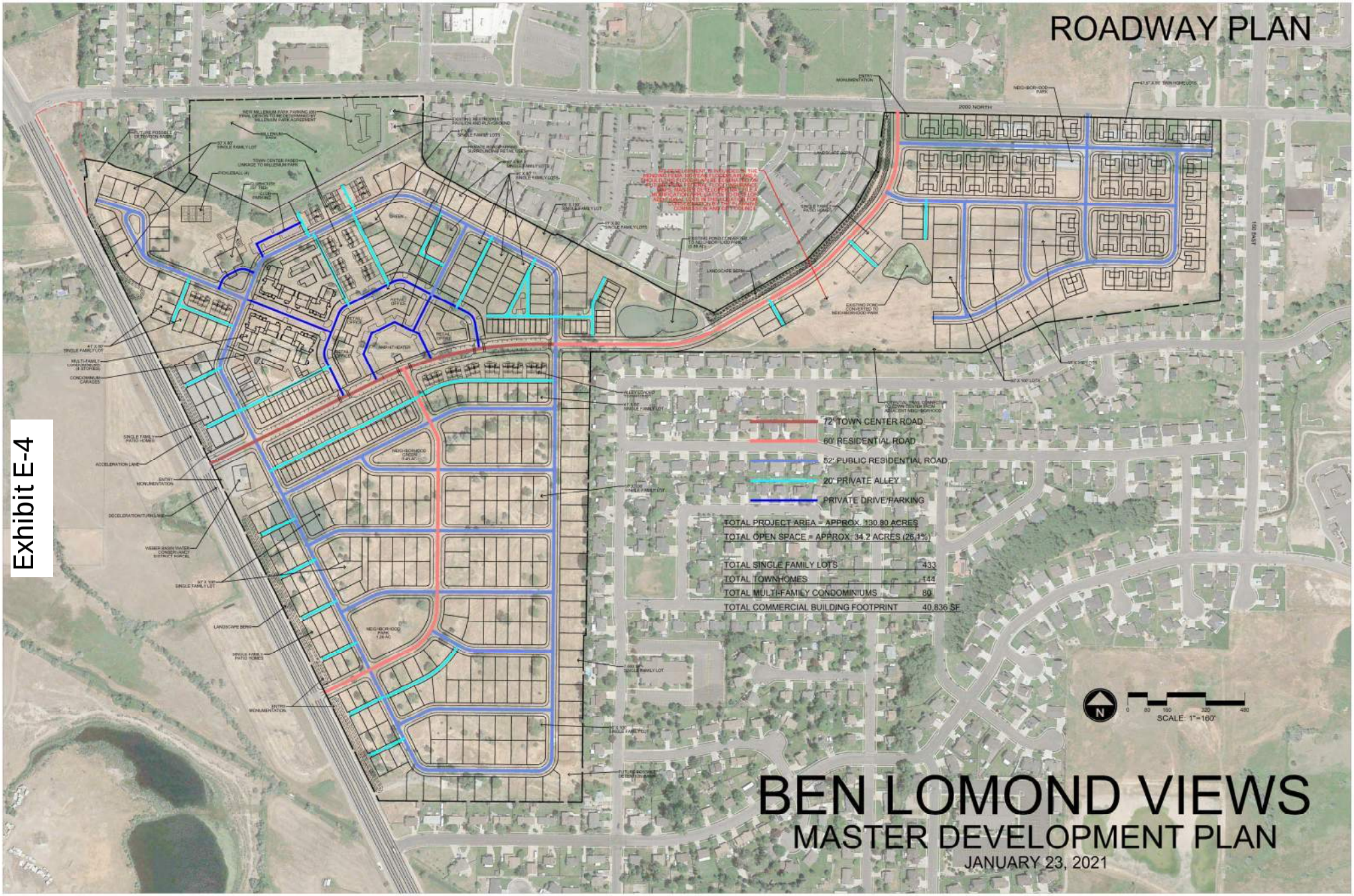
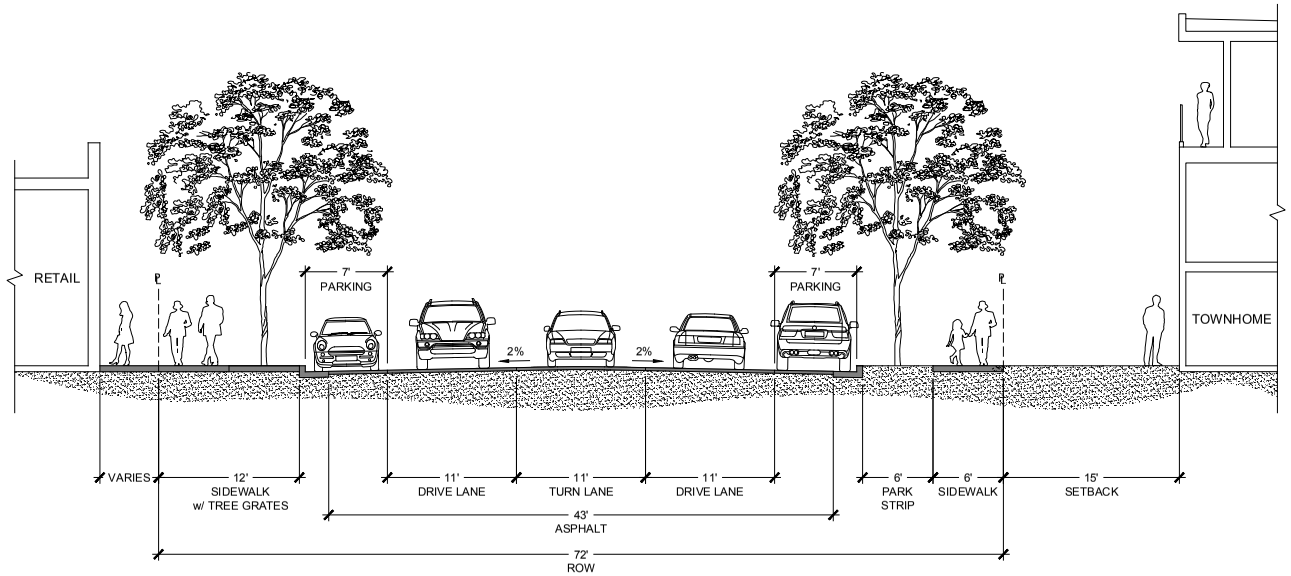
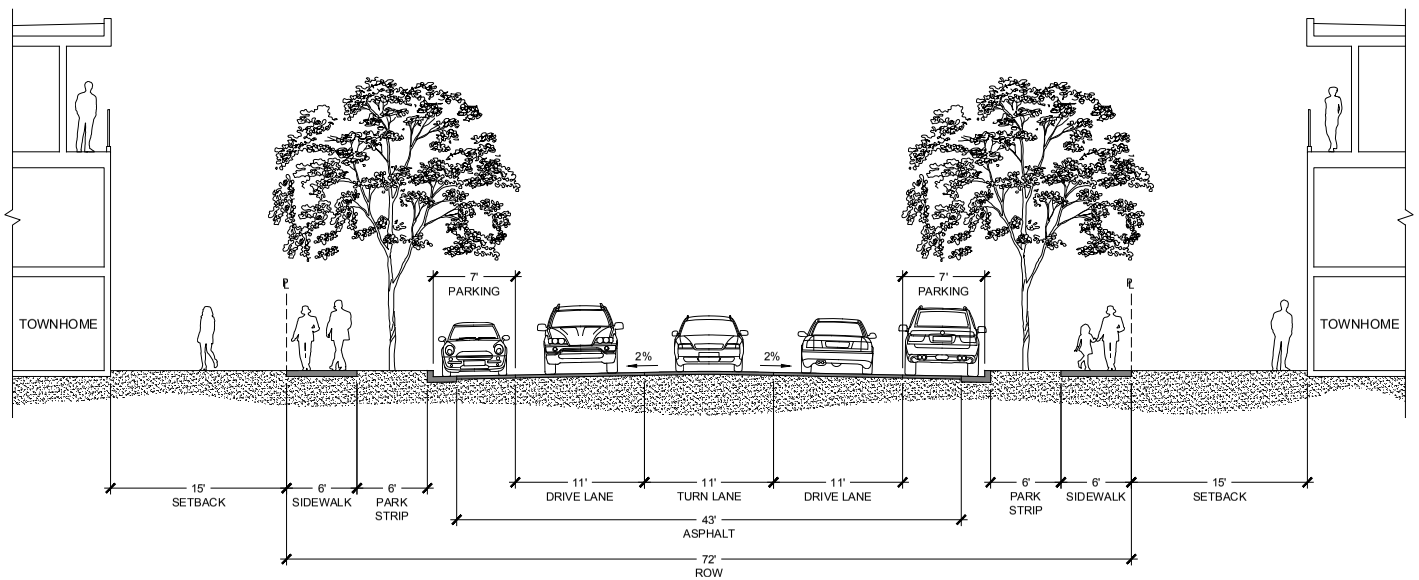

ROADWAY PLAN
Exhibit E-4
72' TOWN CENTER ROAD
60' RESIDENTIAL ROAD
52' PUBLIC RESIDENTIAL ROAD
20' PRIVATE ALLEY
PRIVATE DRIVE/PARKING
TOTAL PROJECT AREA = APPROX. 130.80 ACRES
TOTAL OPEN SPACE = APPROX. 34.2 ACRES (26.1%)
TOTAL SINGLE FAMILY LOTS 433
TOTAL TOWNHOMES 144
TOTAL MULTI-FAMILY CONDOMINIUMS 80
TOTAL COMMERCIAL BUILDING FOOTPRINT 40,836 SF
N
0 80 160 320 480
SCALE: 1"=160'
BEN LOMOND VIEWS
MASTER DEVELOPMENT PLAN
JANUARY 23, 2021

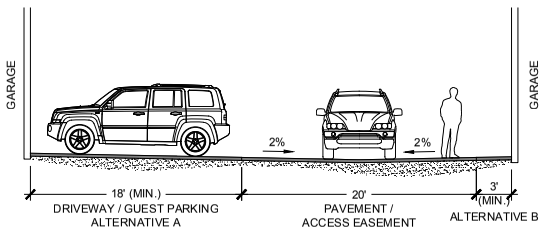
Exhibit E-5



1 TOWN CENTER ROADWAY SECTION - TYPE 1
SCALE: 1" = 5' -0"

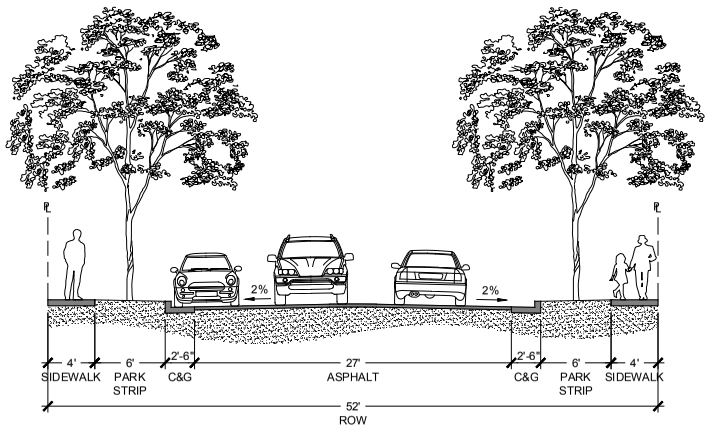


2 TOWN CENTER ROADWAY SECTION - TYPE 2
SCALE: 1" = 5' -0"



1 PRIVATE ALLEY (REAR LOAD PRODUCT)

SCALE: 1" = 5' -0"



1 52' ROW RESIDENTIAL STREET

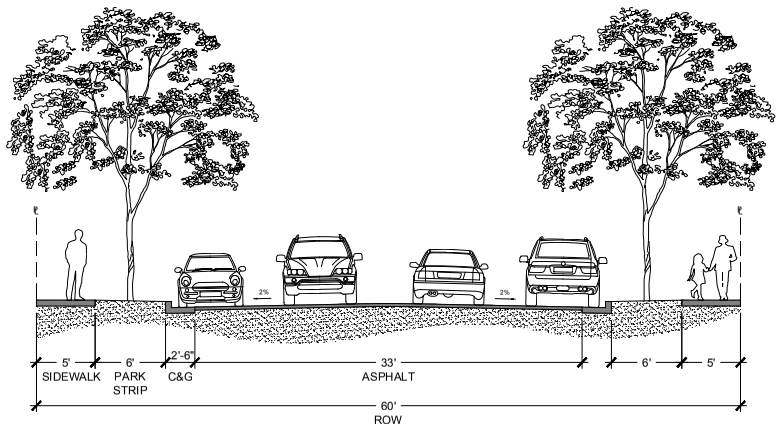
SCALE: 1" = 5' -0"

Ben Lomond Views

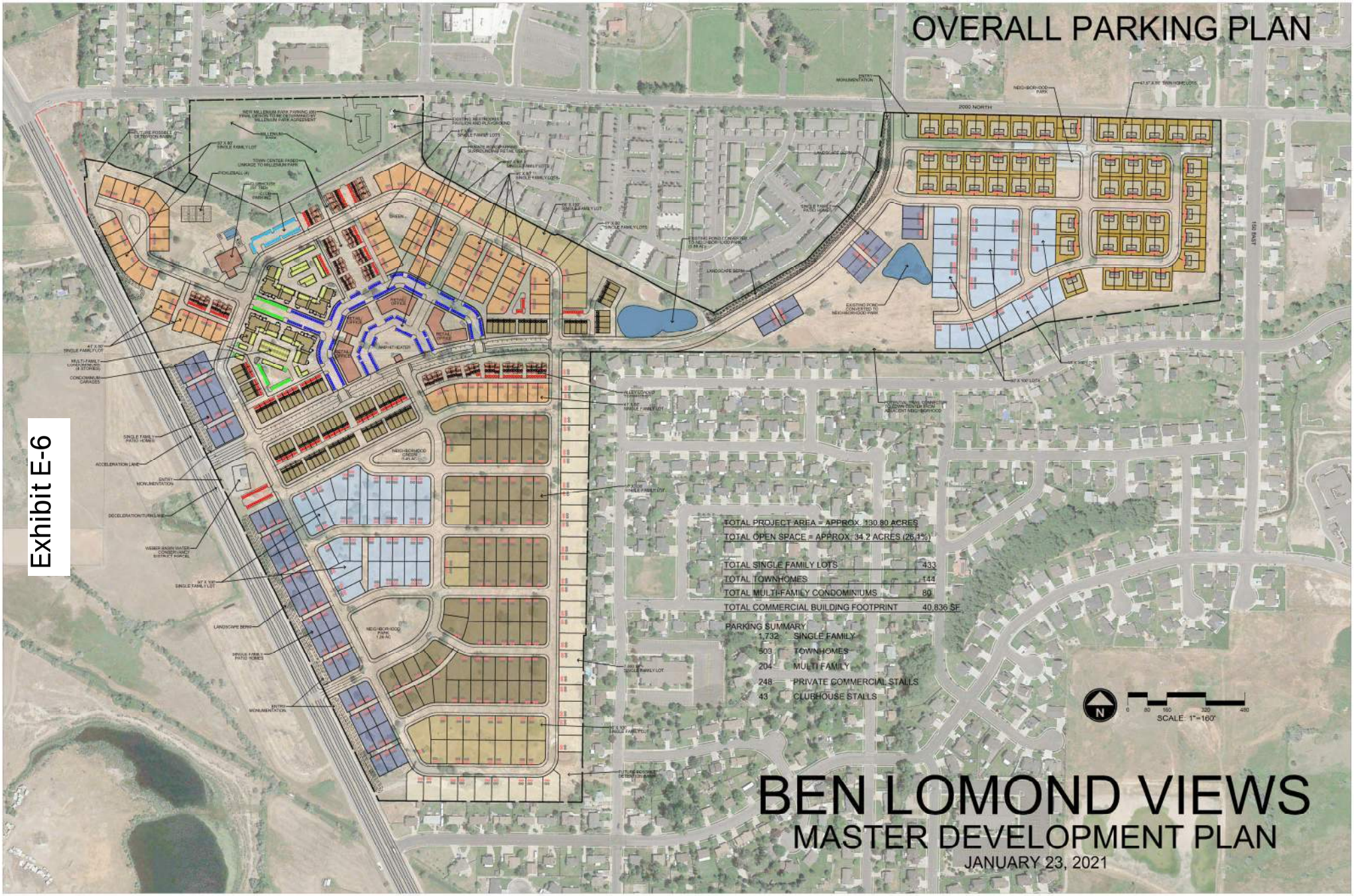
Road Sections

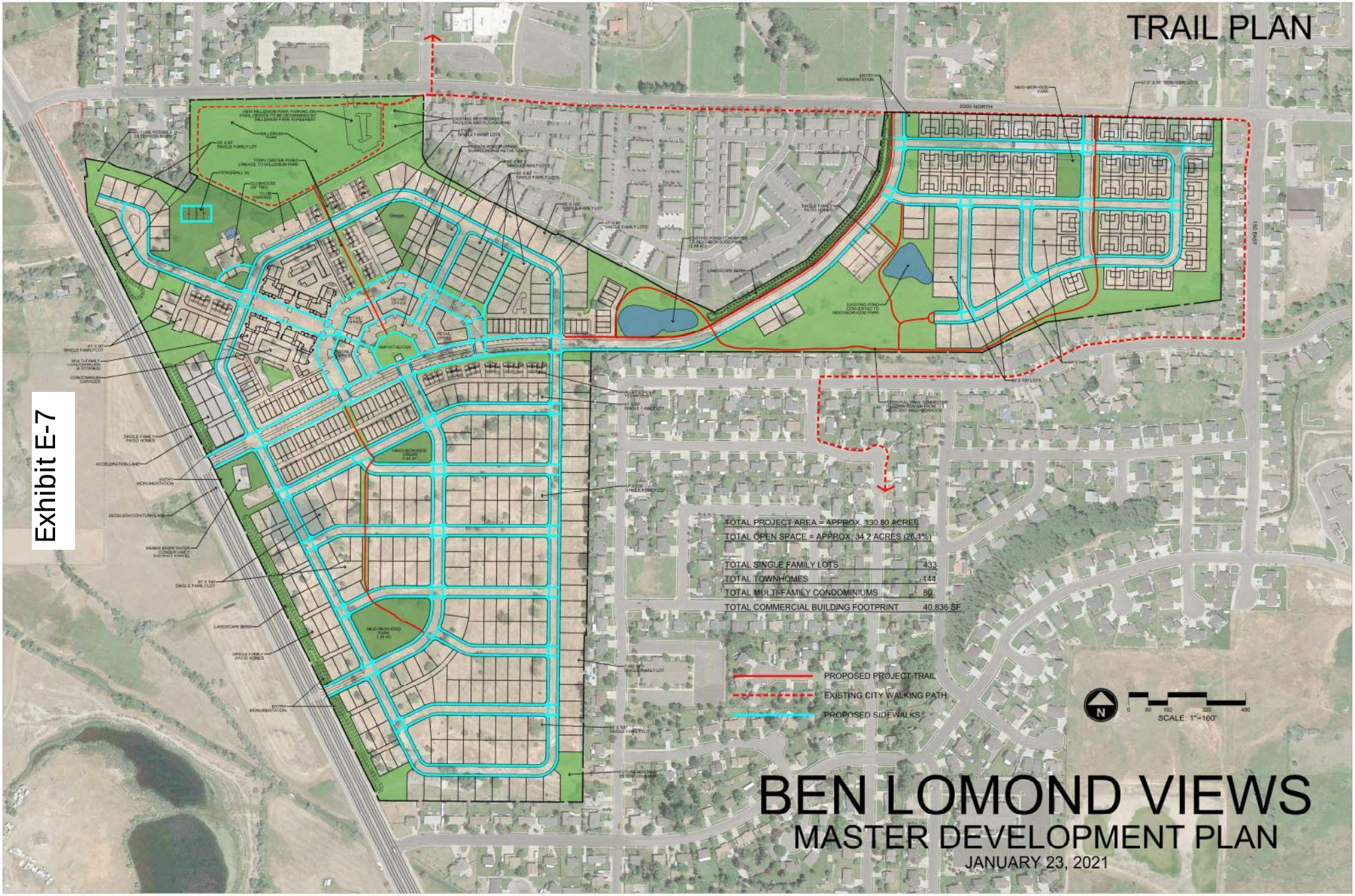
November 12, 2020

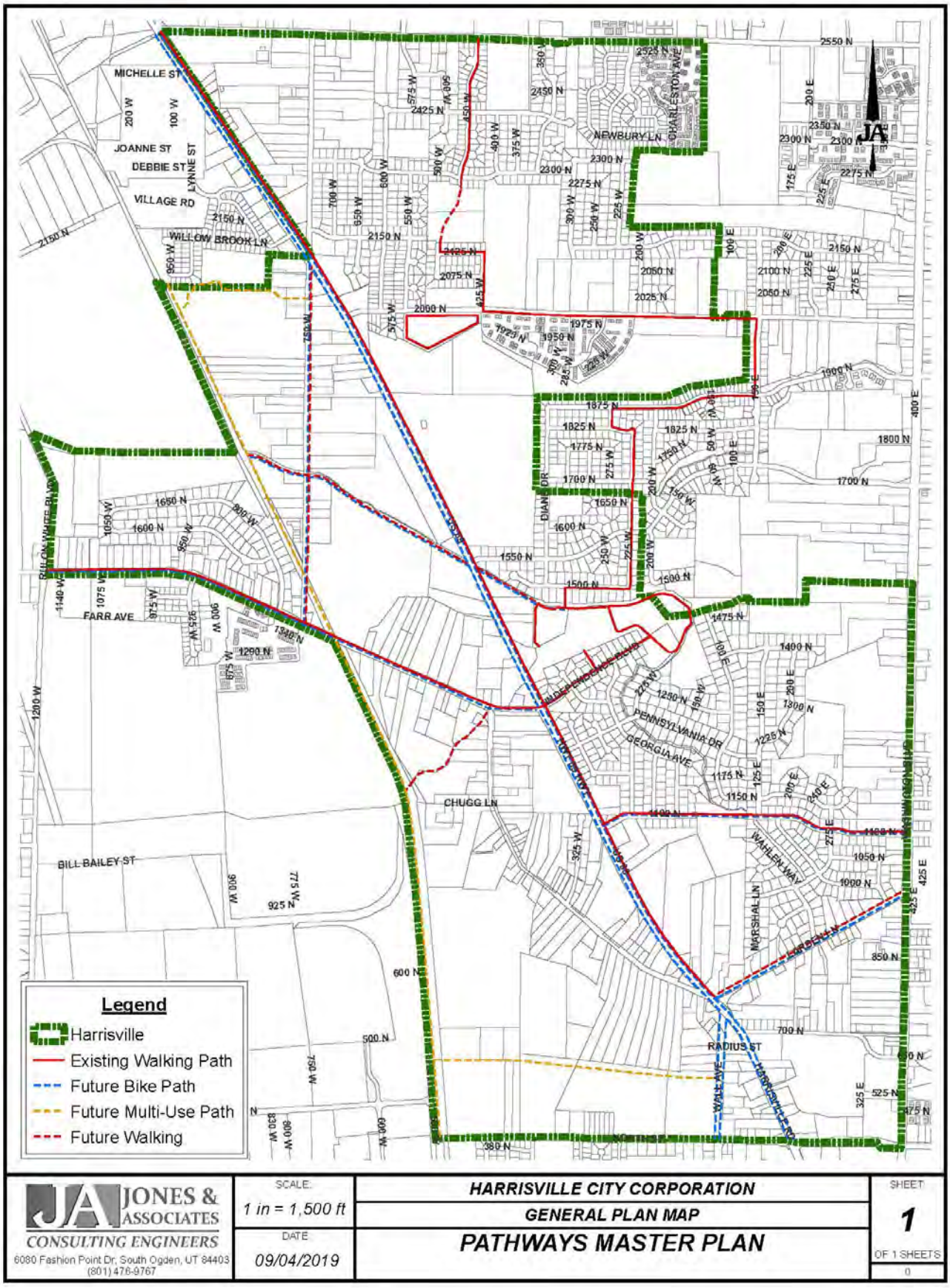
SCALE: 1" = 5'



1 60' ROW RESIDENTIAL STREET
SCALE: 1" = 5' -0"


OVERALL PARKING PLAN
Exhibit E-6
TOTAL PROJECT AREA = APPROX. 130.80 ACRES
TOTAL OPEN SPACE = APPROX. 34.2 ACRES (26.1%)
TOTAL SINGLE FAMILY LOTS 433
TOTAL TOWNHOMES 144
TOTAL MULTI-FAMILY CONDOMINIUMS 80
TOTAL COMMERCIAL BUILDING FOOTPRINT 40,836 SF
PARKING SUMMARY
1,732 SINGLE FAMILY
509 TOWNHOMES
204 MULTI FAMILY
248 PRIVATE COMMERCIAL STALLS
43 CLUBHOUSE STALLS
N
0 80 160 320 480
SCALE: 1"=160'
BEN LOMOND VIEWS
MASTER DEVELOPMENT PLAN
JANUARY 23, 2021


TRAIL PLAN
Exhibit E-7
2500 NORTH
150 EAST
TOTAL PROJECT AREA = APPROX. 130.80 ACRES
TOTAL OPEN SPACE = APPROX. 34.2 ACRES (26.1%)
TOTAL SINGLE FAMILY LOTS 433
TOTAL TOWNHOMES 144
TOTAL MULTI-FAMILY CONDOMINIUMS 80
TOTAL COMMERCIAL BUILDING FOOTPRINT 40,836 SF
PROPOSED PROJECT TRAIL
EXISTING CITY WALKING PATH
PROPOSED SIDEWALKS
N
0 80 160 320 480
SCALE: 1"=160'
BEN LOMOND VIEWS
MASTER DEVELOPMENT PLAN
JANUARY 23, 2021


MICHELLE ST
JOANNE ST
DEBBIE ST
LYNNE ST
VILLAGE RD
WILLOW BROOK LN
NEWBURY LN
CHARLESTON AVE
FARR AVE
CHUGG LN
BILL BAILEY ST
PENNSYLVANIA DR
GEORGIA AVE
WAHLEN WAY
MARSHAL LN
RADIUS ST
WALT AVE
Legend
Harrisville
Existing Walking Path
Future Bike Path
Future Multi-Use Path
Future Walking
JONES & ASSOCIATES
CONSULTING ENGINEERS
6080 Fashion Point Dr, South Ogden, UT 84403
(801) 476-9767
SCALE: 1 in = 1,500 ft
DATE: 09/04/2019
HARRISVILLE CITY CORPORATION
GENERAL PLAN MAP
PATHWAYS MASTER PLAN
SHEET 1 OF 1 SHEETS


BIKE ACCESS PLAN
2000 NORTH
150 EAST
BIKE ROUTE WITHIN STREET
BIKE ROUTE ON TRAIL/PATH
BIKE WALK AREA
FUTURE BIKE LANES
BIKE RACKS
TOTAL PROJECT AREA = APPROX. 130.80 ACRES
TOTAL OPEN SPACE = APPROX. 34.2 ACRES (26.1%)
TOTAL SINGLE FAMILY LOTS 433
TOTAL TOWNHOMES 144
TOTAL MULTI-FAMILY CONDOMINIUMS 80
TOTAL COMMERCIAL BUILDING FOOTPRINT 40,836 SF
N
0 80 160 320 480
SCALE: 1"=160'
BEN LOMOND VIEWS
MASTER DEVELOPMENT PLAN
JANUARY 23, 2021

Exhibit E-9

Exhibit F
Phasing Plan

EXHIBIT F-1

Phasing Plan
May 24, 2021

The Ben Lomond Views project will be completed in six phases with an overall objective of compressing the time between phases and accelerating completion of the entire project. This will require us to design and obtain City approval for project-wide infrastructure and residential subdivisions in a compressed time frame that allows for construction across the entire site in essentially a single phase. Special areas such as the condominium apartments, Town Center commercial buildings, and the clubhouse follow a design, approval, and construction timing process that is separate but linked to the completion status of the project infrastructure and single-family residential subdivisions. Completion of the improvements to Millenium Park are anticipated to be completed in an independent Phase 1. All work in and around the Excluded Area of the flood plain is deferred to the last Phase 6, pending resolution of flood plain remapping

Work Completed in Various Phases

1. **Phase 1** is improvements to Millenium Park that are identified in the Millenium Park Easement Agreement. This Phase is planned for completion by the end of 2021.

2. **Phase 2** is broken down into sub-phases A, B, C and D to reflect the timing of completion of design and submission of subdivision applications. Phase 2A will also include the preliminary design and review with City staff and utilities of project wide systems such as water, sanitation, secondary water, and storm water, electric, natural gas and telecommunications. It will also include design and UDOT approval of Highway 89 access and City review and approval of access to 2000 N. Phases 2B through 2D are completion and approval of residential subdivision applications. It is our objective to begin construction on all components of Phase 2 as concurrently as possible and as early as possible in 2022.

3. **Phase 3** is design and approval of condominium apartments, which include two separate apartment building and parking complexes with a total of 80 units as shown on the Master Plan. The design process will be linked to the design of the Town Center commercial areas including discussions with the Planning Commission, City work groups and residents beginning in late summer or early fall depending upon the timing of the MDA approval and City scheduling of planning discussions. Final drawings for the condominium apartment buildings will be completed no later than 18 months after the effective date of the MDA. Construction of the first apartment complex is expected to begin during or upon completion of the adjacent Phase 2 work with timing of the start of the second complex based on market absorption rates.

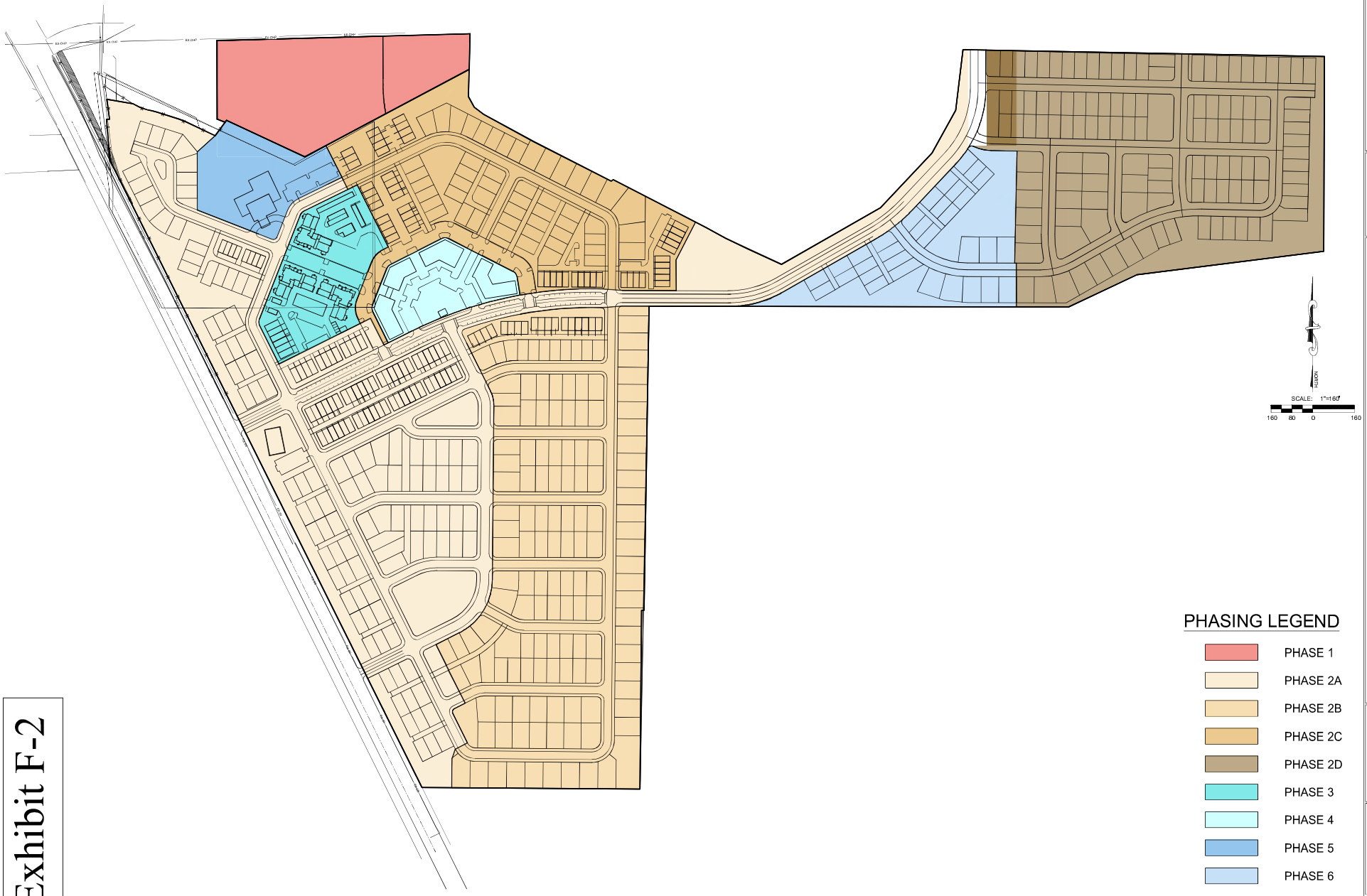


Exhibit F-2

LEI
- A Utah Corporation -
ENGINEERS
SURVEYORS
PLANNERS
3302 N. Main Street
Spanish Fork, UT 84660
Phone: 801.798.0555
Fax: 801.798.9393
office@lei-eng.com
www.lei-eng.com

NOT FOR CONSTRUCTION

HARRISVILLE
HARRISVILLE, UTAH

PHASING PLAN

REVISIONS
1 -
2 -
3 -
4 -
5 -

LEI PROJECT #:
2019-0027
DRAWN BY:
DSE
DESIGNED BY:
BTG
SCALE:
1"=160'
DATE:
05/27/2021

SHEET
1

Exhibit G
Design and Site Standards and Renderings

Exhibit G-1

Design and Site Standards and Renderings

This Exhibit G consists of:

1. G-1 Residential Design and Site Standards.
   These Standards will be supplemented by a Residential Design Guide to be used by the Home Owner's Association Design Review Committee to review sub-developer applications for residential building permits. The Guide will be completed prior to completion of residential subdivision construction.

2. G-2 Preliminary Residential Renderings
   These will be supplemented with additional renderings provided during negotiations with individual sub-developers.

3. G-3 Commercial and Multi-Family Design "Idea Boards"
   These are examples of materials that will be used to determine the overall design approach to the condominium and commercial buildings as described in the text of this Agreement.

Residential Design and Development Standards

1. Single Family Lots

a. Lot Area and Frontage Requirements

Each lot or parcel shall comply with the minimum requirements of this regulation as provided below except when such lot or parcel has a noncomplying right.

Minimum Lot Area	4,000 sq ft
Minimum Lot Frontage	40 ft

b. Residential Building Setbacks

Any structure intended for use as a residential dwelling, including any accessory structure attached to the dwelling structure such as a garage, shall maintain a minimum distance in feet from the property line to the building according to the following table. Notwithstanding the setback requirement, easements or other recorded restrictions to portions of a property are not superseded by setback requirements and must be considered when locating structures.

	Lots With 40 ft to 60 ft Frontage	Lots with Greater than 60 ft Frontage
Front	15 ft	15 ft
Front to Garage Door	20 ft	20 ft
Front to Side Facing Garage Door	15 ft	15 ft
Interior Side	5 ft	8 ft
Side Facing Corner	10 ft	13 ft
Rear	10 ft	10 ft

c. Additions to Existing Homes

Any single-family dwelling structure having been occupied for a minimum of five years may make an expansion of the dwelling that extends into the area of the rear yard setback for the main portion of the home provided the expansion

i. Maintains the side yard setbacks of the respective zone,
ii. Maintains a minimum setback of 10 feet from the rear property
iii. Is no wider than half the width of the existing house

d. Main Building Height

i. Minimum – 10 feet
ii. Maximum – 35 feet

e. Residential Building Size

i. The maximum footprint of a residential dwelling excluding attached accessory uses shall be four thousand (4,000) square feet.
ii. In order to maintain the traditional residential character developed in Harrisville certain design elements are required. Those requirements are:
    1. Roofs with a pitch no shallower than a ratio of rise to run of 3 to 1.
    2. Main exterior wall finish materials of brick, stone, siding (vinyl, cement, wood, or hardiplank) with a maximum 12" width horizontal lines, stucco, or glass.

f. Accessory Building Development Standards

i. Free standing residential accessory structure setbacks.
Residential accessory structures (e.g. garage, shed, work shop, gazebo, and covered pergola) which are free standing shall only be located to the side or rear of the building. The accessory building located in the side yard must be set back at least ten (10) feet from the side yard property line. For accessory structures located at least six (6) feet in the rear yard behind the main building, the side yard setback may be five (5) feet from a property line. No portion of the roof overhang shall be closer than five (5) feet to any property line, and proper drainage shall be installed to prevent additional drainage onto adjoining property. Placement of accessory buildings on utility easements is not allowed, without written permission of all easement holders.
ii. Maximum accessory building height – 25 feet
iii. Accessory building coverage. No single accessory building or group of accessory buildings shall cover more than twenty-five percent (25%) of the area from the year of the main building to the rear property line.

2. Townhomes

a. Plex Size

i. The minimum number of townhomes with adjoining sidewalls is a three (3-plex). Twin Homes duplex units are also permitted.

ii. The maximum number of townhomes with adjoining sidewalls is a five (5-plex)

iii. Three-story townhomes are required in locations fronting the Town Center Road. Three-story or two-story townhomes are permitted in all other town home locations.

b. Setbacks

Townhomes shall maintain a minimum distance in feet from the property line to the building according to the following table. Notwithstanding the setback requirement, easements or other recorded restrictions to portions of a property are not superseded by setback requirements and must be considered when locating structures.

	Alley Loaded with Driveway	**Alley Loaded Without Driveway**	**Front Loaded**
Front	10 ft	10 ft	15 ft
Side Facing Corner	10 ft	10 ft	10 ft
Interior Distance Between Plex Group	10 ft	10 ft	10 ft
Front Garage			20 ft
Rear			10 ft
Rear - Garage with Driveway	18		
Rear - Garage without Driveway		3	

c. Townhome Height

i. Townhomes may be two or three stories

ii. Maximum height is 38 feet.

3. **Parking**

   a. **Required Parking**
      i. All Single Family homes and Townhomes shall have parking for a minimum of two (2) vehicles in an attached garage.
      ii. All Single Family homes and Front-Loaded Townhomes shall have off-street parking spaces on a concrete or asphalt driveway for 2 vehicles.
      iii. Alley Loaded Townhomes shall have: 1) on-site parking for two (2) vehicles on a concrete or asphalt driveway with a minimum length of 18 feet or, 2) access to additional private off-street parking as shown on the approved Master Plan.

   b. **Additional Off-Street Parking**
      i. Additional parking in front or side yards that is not part of the driveway is not permitted.
      ii. Uncovered parking for recreational vehicles may be permitted in the area behind the rear of the dwelling and in the rear yard setback provided that:
         1. The vehicles parked are currently licensed and operational,
         2. The parked vehicles do not occupy more than twenty-five percent (25%) of the rear area of the property, and
         3. Parking does not need to be on a hard surface.

   c. **Parking and Access Surfaces, Locations and Size**
      i. Required parking for a dwelling shall be paved with asphalt or concrete surface.
      ii. Driveway widths:
         1. Minimum width of eighteen (18) feet
         2. Maximum width of thirty-two (32) feet

   d. **Parking Size** – The minimum size for a required parking space is nine (9) feet wide and eighteen (18') feet long.

Exhibit G-3
House Renderings

Ben Lomond Views

Single Family Home Renderings

The renderings shown here are representations of homes that would be constructed on the various lot types in the Ben Lomond Views Master Development Plan. The renderings were provided by builders under consideration for participation in the Ben Lomond Views development. All homes shown are from builder product lines that have been matched to the specific lot sizes and dimensions as indicated below.






















BEDROOMS: 3
BATHROOMS: 2.5
FINISHED SQ FT: 1,939


BEDROOMS: 3
BATHROOMS: 2.5



























































3 - Story Townhomes (Maximum Grouping Will Be A 5-Plex)





2-Story Townhomes (Maximum Grouping Will Be a 5-Plex)

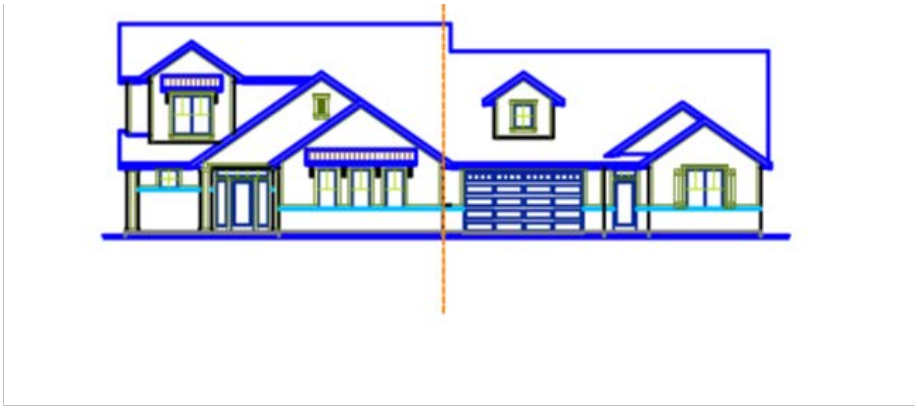




Twins (Senior Targeted) Homes



The Twins 2-family home above will be re-designed with 1 garage door facing the street and 1 side entry garage door. One or both front entry doors will also be relocated to the front elevation. A line drawing and plan showing the preliminary new layout is below.



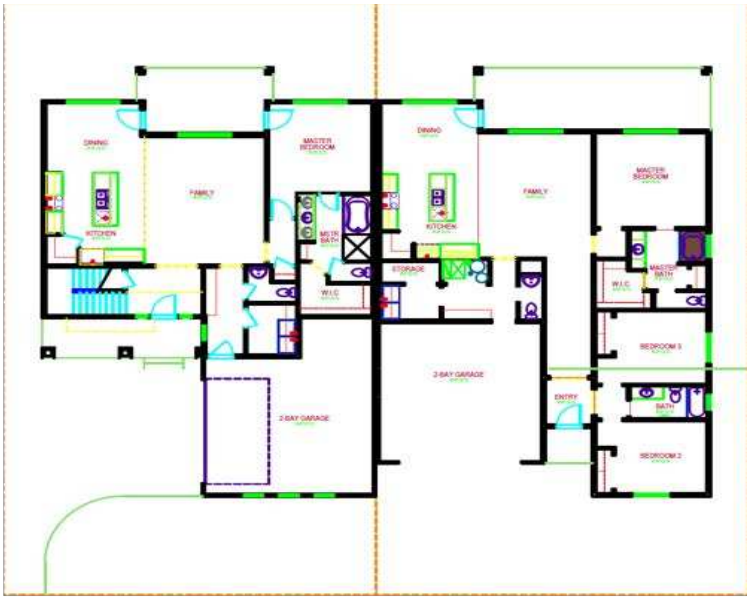


Exhibit G-4
Commercial Idea Boards















IMAGE & CHARACTER BOARD - Restaurants

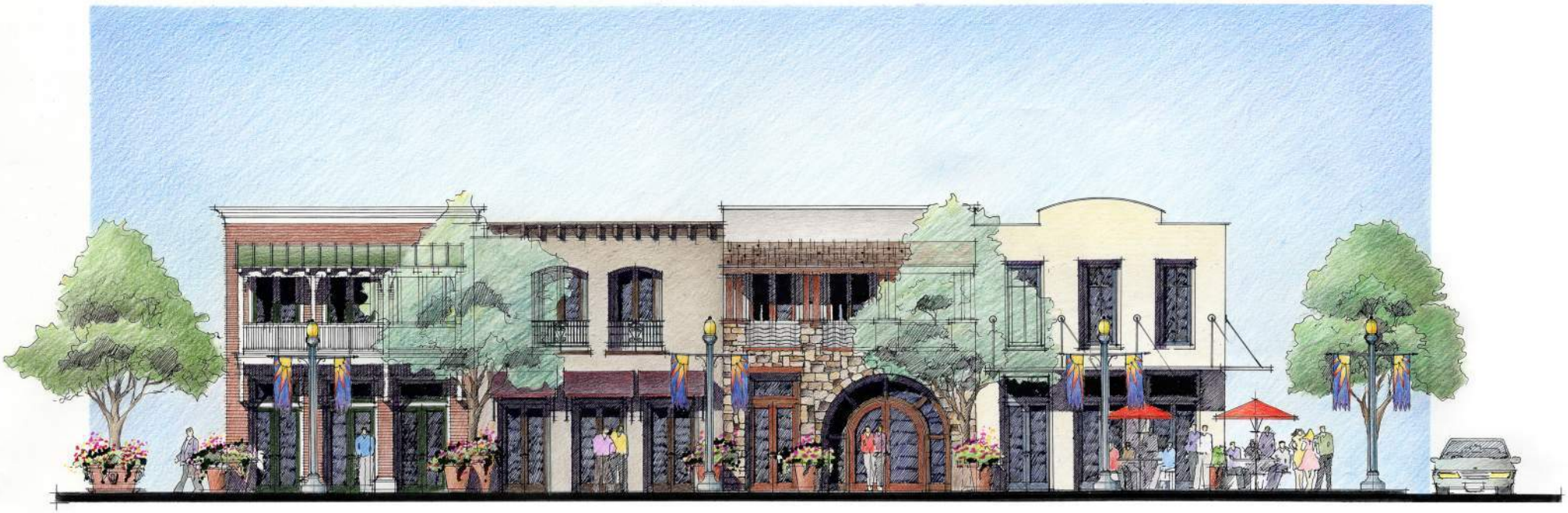








IMAGE & CHARACTER BOARD - Commercial

BLD Investments LLC

BEN LOMOND VIEWS - TOWN CENTER

HARRISVILLE CITY, UTAH

J Z M K PARTNERS

202106

3-9-2021









IMAGE & CHARACTER BOARD - Commercial









IMAGE & CHARACTER BOARD - Commercial









IMAGE & CHARACTER BOARD - CONDOS









IMAGE & CHARACTER BOARD - CONDOS

BLD Investments LLC

BEN LOMOND VIEWS - CONDOS

HARRISVILLE CITY, UTAH

J Z M K
PARTNERS

202106

3-9-2021









IMAGE & CHARACTER BOARD - CONDOS

EXHIBIT H

Standards Deviations

1. Master Plan and Subsidiary Drawings (all dated March 18, 2021)
    a. Master Plan (amended with Excluded Development Area Label on Flood Plain)
    b. Overall Land Use Plan
    c. Roadway Plan
    d. Parks Plan
    e. Overall Parking Plan
    f. Bike Access Plan
    g. PTOS Plan
2. Road Cross Sections
3. Residential Development Standards
4. Commercial Development Standards
5. Residential Design Standards
6. Commercial Design Standards
7. Intended Uses
8. Transportation Plan

Exhibit I

WHEN RECORDED, MAIL TO:
David W. Slaughter
SNOW CHRISTENSEN & MARTINEAU
10 Exchange Place, 11th Floor
Salt Lake City, Utah 84111

For tax parcel numbers, see Exhibit A

BYLAWS

OF

BEN LOMOND VIEWS COMMUNITY ASSOCIATION,

A UTAH NONPROFIT CORPORATION

ARTICLE I – DEFINITIONS

All capitalized terms used in these Bylaws and not specifically defined herein shall have the meanings given in the Declaration of Covenants, Conditions and Restrictions for Ben Lomond Views (the "Declaration.")

ARTICLE II – ORGANIZATION AND PURPOSES

Section 1 – Purposes. The Association is organized as a nonprofit corporation and shall be operated exclusively for the purposes of maintaining, operating, and governing the Common Area of Ben Lomond Views, a Master Planned Community, hereinafter the "Community," located upon real property located in the Town of Harrisville, Weber County, State of Utah and shown on that certain map entitled "Ben Lomond Views, a Master Planned Community" filed in the office of the Weber County Recorder on _____, as Entry No. _____, in Book _____, at page _____ of Official Records. The Community is governed by that certain Declaration of Covenants, Conditions, and Restrictions for Ben Lomond Views, recorded in the office of the County Recorder for Weber County, State of Utah, on _____, as Entry No. _____, in Book _____, Page _____, as the same may be modified or amended from time to time (the "Declaration"). The Association is organized and shall be operated to perform the functions and provide the services contemplated in the Declaration. Without limiting the powers provided herein and by law, the Association shall have all of the powers enumerated in the Declaration, subject to any limitations or restrictions contained in the Declaration. No dividends shall be paid and no part of the net income of the Association, if any, shall be distributed to the members, trustees, or officers of the Association, except as otherwise provided herein, in the Declaration, or by law.

Section 2. Registration. The Association shall register with the Utah Department of Commerce's Homeowner Associations Registry (currently at https://secure.utah.gov.hoa) and provide the required information, including email address and other contact information for the

Board Chair, the manager (if any) and of a primary contact person who has Association payoff information that a closing agent may require in connection with the closing of a Lot Owner's financing, refinancing or sale of the Owner's Lot. The Association shall update the required information with the Utah HOA Registry within 90 days after a change in any of the information.

ARTICLE III – SUBJECT TO DECLARATION

These Bylaws are governed by and subject to the provisions of the Declaration. In the event of any conflict between these Bylaws and the Declaration, the provisions of the Declaration shall control.

ARTICLE IV – OFFICE

The Board of Directors shall designate and the Association shall maintain a principal office. The location of the principal office may be changed by the Board of Directors from time to time. The Association may also have offices in such other places as the Board may from time to time designate.

The initial location of the principal office of the Association shall be:

_____
Harrisville, Utah 84092

ARTICLE V – MEMBERSHIP AND VOTING RIGHTS

Section 1. *Membership*. The Declaration provides that all owners of a Lot or Parcel that is Assessable Property under the terms of the Declaration shall be members of the Association. (provided, however, the Developer shall remain a Member in the Community Association at all times as a Class B Member with voting rights, notwithstanding its temporary exemption status from required Assessment payments).

No evidence of membership in the Association shall be necessary. Membership in the Association is mandatory for, and is limited to, the Declarant and Lot Owners.

Section 2. *Voting Rights*. Voting rights shall be as described in the Declaration. There shall be as many votes in the Association as there are Assessable Units (defined in the Declaration) in the Community. Until the expiration or termination of the Control Period (a) the Association shall be deemed to have two classes of Members, Class A and Class B; (b) the Developer or its successor or assign, as Declarant, shall be the Class B Member, and all votes held by the Declarant shall be Class B votes; (c) all Owners other than Declarant shall be Class A Members, and all votes held by such Owners shall be Class A votes. Following expiration or termination of the Control Period the Association shall be deemed to have a single class of Members and votes. During the Control Period, all matters coming before the Association for vote shall be decided by the vote of the Declarant as the sole Class B Member. Following Control Period, all Class B Memberships and all Class B votes shall cease to exist, and, with the exception of any matter requiring any form of supermajority vote, as provided in the Declaration or herein,

any issue put to a vote at a duly called meeting of Members at which a quorum is present shall be decided by a simple majority of all votes represented in person or by valid proxy at such meeting.

Section 3. *Record Date*. The Association shall fix, in advance, a date as a record date for the determination of the number of member votes exercisable. The record date shall be not less than ten (10) days nor more than ninety (90) days prior to any meeting or action taken.

Section 4. *Manner of Voting.* Votes shall be conducted under and in accordance with rules adopted by the Association and communicated to the Members. The vote for each Lot must be cast as a single vote, and fractional votes shall not be allowed. In the event that more than one Person owns a Lot, and such Owners are unable to agree among themselves as to how their vote or votes shall be cast, they shall lose their right to vote on the matter in question. If any Member casts a vote representing a certain Lot, it will thereafter be conclusively presumed for all purposes that the Member was acting with the authority and consent of all other Owners of the same Lot unless objection thereto is made at the time the vote is cast. In the event more than one Owner attempts to cast the vote or votes for a particular Lot, the vote or votes for that or Lot shall be deemed void and shall not be counted. Any change in the ownership of a or Lot shall be effective for voting purposes from the time the deed or other instrument effecting such change is Recorded and the Association has been given written notice of such change and provided satisfactory evidence thereof.

ARTICLE VI – MEETINGS

Section 1. *Annual Meeting*. The annual meeting of the Members of the Association shall be held at the principal office of the Association or at such other place within Weber County, Utah, as shall be designated by the Board of Directors. The meeting shall be held on the second Wednesday in August of each year, or such other day after proper notice, unless notice is waived. If such day is a legal holiday, the meeting shall be on the next business day. This meeting shall be for the transaction of such business as may properly come before it.

Section 2. *Special Meetings*. Special meetings of Members may be called at any time by the President or by a majority of the Directors and must be called by the President upon written request of Members holding at least fifteen percent (15%) of all eligible Members. Written notice of such meeting shall be given to all Members, stating the place, the date, and hour of the meeting, the purpose or purposes for which it is called.

Section 3. *Notice of Members Meetings*. The Association shall give written notice of each meeting of the Members, stating the place, day, and hour of the meeting, the purpose or purposes for which the meeting is called, which shall be delivered not less than ten nor more than fifty days before the date of the meeting, either personally or by mail to each Member. If mailed, such notice shall be deemed to be delivered when deposited in the United States mail, addressed to the Member at the Member's address as it appears on the records of the Association, with postage thereon prepaid. Unless and until the Association is notified in writing of a change in address, the address for notices to each Member shall be as stated in Article V – Section 1. Notices of meetings may also be given to Members by electronic mail at email addresses to be provided by each Member to the President or Secretary. Each Member shall be responsible to inform the President or Secretary of changes in its email address.

Section 4. *Place of Meeting*. The Association may designate any place within Weber County, Utah as the place of meeting for any annual meeting or for any special meeting. A waiver of notice signed by all Members entitled to vote at a meeting may designate any place as the place for the holding of such meeting. If no designation is made the place of meeting shall be the principal office of the Association.

Section 5. *Quorum*. A majority of the voting power of the Association, represented in person or by proxy, shall constitute a quorum at a meeting of Members. Except as otherwise provided herein, if less than a majority of the voting power of the Association is represented at a meeting, a majority of the voting power so represented may adjourn the meeting from time to time without further notice. At a meeting resumed after any such adjournment at which a quorum shall be present or represented, any business may be transacted which might have been transacted at the meeting as originally noticed. The Members present at a duly organized meeting may continue to transact business until adjournment, notwithstanding the withdrawal of Members in such number that less than a quorum remain.

Section 6. *Meetings Held Electronically*. Notwithstanding anything to the contrary herein, any Annual or Special Meeting of the Members may be held by telephone conference, video conference, or other commonly-accepted electronic means.

Section 7. *Informal Action by Members*. Any action required to be taken at a meeting of the Members or any action which may be taken at a meeting of the Members may be taken without a meeting if a consent in writing, setting forth the action so taken, shall be signed by all of the Members entitled to vote with respect to the subject matter thereof.

ARTICLE VII – ASSESSMENTS

Section 1. *Purpose of Assessments*. The purpose of Assessments is to raise funds necessary to operate the Common Areas. Assessments shall be used exclusively for the improvement, maintenance and administration of the Common Areas and other expenditures incurred in the performance of the duties of the Association as provided in the Declaration.

Section 2. *Assessments*. Regular and Special Assessments and Individual Charges or Assessments shall be established and levied according to the provisions of the Declaration. Except as otherwise provided in the Declaration, all Regular and Special Assessments shall be levied against the Lots benefitted by the Assessments.

Section 3. *Uniform Rate of Assessment*. Except as otherwise provided for in the Declaration, Regular and Special Assessments shall be fixed at a uniform rate for all Lots benefited by the Assessment.

Section 4. *Personal Obligations and Lien for Assessments and Charges*. By acquiring or in any way becoming vested with an interest in a Lot, each Owner has covenanted and agreed to pay to the Association the Owner's share of the Regular and Special Assessments and Individual Charges assessed by the Association, together with late charges, interest, costs, and reasonable attorney's fees, all as described in the Declaration.

Section 5. *Nonpayment Remedies*. In the event a Member fails to pay Assessments, the Association shall have the remedies described in the Declaration which include (without limitation) the right to sue to recover a money judgment and the right to enforce liens.

ARTICLE VIII – OPERATION AND MANAGEMENT

Section 1. *Maintenance of Common Area and Private Community Roads by Association*. The Association shall be responsible for maintaining (including snow removal), repairing and replacing all of the private roads located in Common Area.

Section 2. *Professional Management*. The Association may manage its affairs by self-management, or, for those of its functions which are properly the subject of delegation, the Association may contract with a professional manager for management services. The professional manager so engaged shall be an independent contractor and not an agent or employee of the Association, shall be responsible for managing the Common Area for the benefit of the Association and the Owners, and shall, to the extent permitted by law and by the terms of the agreement with the Association, be authorized to perform any of the functions or acts required or permitted to be performed by the Association itself.

Section 3. *Limitations*. No action (whether administrative, financial, or relating to the scope of any work to be performed in the Common Area) shall be taken by the Association, Board of Directors, any Director, or any officer of the Association unless and until that action has been approved by the vote of a majority of the voting power of the Association as set forth in the Declaration. No work shall be commenced or performed in the Common Area unless and until it has been approved by the vote of a majority of the voting power of the Association. No contract shall be entered into for goods or services to be provided to the Common Area or the Association without prior approval by the vote of a majority of the voting power of the Association. The voting functions of the Board of Directors may not be delegated.

ARTICLE IX – ASSOCIATION INSURANCE

Section 1. *Fidelity Bonds*. The Association shall at all times maintain in force and pay the premiums for blanket fidelity bonds for all officers, trustees, members, and employees of the Association and for all other persons handling or responsible for the funds of or administered by the Association. Furthermore, where the Association has delegated some or all of the responsibility for the handling of funds to a professional manager, such bonds are required for the professional manager's officers, directors, employees, and agents handling or responsible for funds of, or administered on behalf of, the Association. The total amount of the fidelity bond coverage required shall be based upon best business judgment and shall not be less than the sum equal to three months aggregate assessments by the Association plus reserve funds. The bonds required shall meet the following additional requirements: (1) the fidelity bonds shall name the Association as obligee; (2) the bonds shall contain waivers by the issuers of the bonds of any defense based on the exclusion of persons who serve without compensation from any definition of "employee"; (3) the premiums on all bonds required for the Association (except for premiums on fidelity bonds maintained by a professional manager for its officers, directors, employees, and agents) shall be paid by the Association as a common expense, reimbursable through Assessments; and (4) the bonds shall provide that they may not be canceled or substantially modified (including

cancellation for nonpayment of premium) without at least ten (10) days prior written notice to the Association.

Section 2. *Liability, Casualty and Other Insurance*. The Association shall maintain in force and pay the premiums for all insurance coverage required by the Declaration. The Association may obtain additional insurance policies and coverages as permitted by the Declaration. The coverage limits under such policies shall be at least the minimum amounts required by the Declaration and may be, in the discretion of the Board of Directors, in higher amounts generally required by private institutional mortgage investors for projects similar to the Community in construction, location, and use. Any such policies obtained by the Association shall be paid by the Association as a common expense, reimbursable through Assessments.

ARTICLE X – BOARD OF DIRECTORS

Section 1. *General Powers*. The business and affairs of the Association shall be managed by its Board of Directors. The Board of Directors may adopt such rules and regulations for the conduct of their meetings and the management of the Association as they deem proper, subject to the provisions of the Declaration and these Bylaws. Without limiting the powers provided herein and by law, the Board of Directors shall have all of the powers enumerated in the Declaration, subject to any limitations or restrictions contained in the Declaration.

Section 2. *Number, Tenure, and Qualification*. The number of Directors of the Association shall be not fewer than three and not more than seven. During the Control Period, the Developer shall have a right to appoint all members of the Board and all Board decisions shall be subject to Developer approval. The Directors will not hold equal voting power. Directors need not be residents of the State of Utah but must be Owners, as defined in the Declaration.

Section 3. *Regular Meetings*. A regular meeting of the Board of Directors shall be held without other notice than by this Bylaw, immediately following after and at the same place as the annual meeting of Members. The Board of Directors may provide, by resolution, the time and place for the holding of additional regular meetings without other notice than the resolution.

Section 4. *Special Meetings*. Special meetings of the Board of Directors may be called by order of the President, or by one-third of voting power of the Directors. The Association shall give notice of the time, place, and purpose or purposes of each special meeting by mailing the notice to each Director at least two days before the meeting or by telephoning each Director at least one day before the meeting.

Section 5. *Quorum*. A majority of the voting power of the Board of Directors shall constitute a quorum for the transaction of business, but less than a quorum may adjourn any meeting from time to time until a quorum shall be present, whereupon the meeting may be held as adjourned without further notice. At any meeting at which every Director shall be present, even though without any notice, any business may be transacted.

Section 6. *Manner of Acting.* At all meetings of the Board of Directors, each Director shall have an equal vote. The act of a majority of the voting power present at a meeting shall be the act of the Board of Directors, provided a quorum is present and subject at all times during the

Control Period to the Developer's written approval. Directors may not delegate their responsibility and power to consider and vote on Association matters.

Section 7. *Vacancies*. In the event of a vacancy because of the death, resignation, or removal of a Director during the Control Period, the Developer shall appoint a replacement. After the Control Period, any vacancy shall be filled by an appointment made by the remaining Board members.

Section 8. *Resignation*. A Director may resign at any time by delivering written notification of his or her resignation to the President or Secretary of the Association; provided, however, that the resignation will not become effective until a replacement Director is designated. Subject to the foregoing, resignation shall become effective upon its acceptance by the Board of Directors. Notwithstanding any of the foregoing, if the Board of Directors has not acted thereon within ten days from the date of its delivery and designation of a replacement Director, the resignation shall upon the tenth day be deemed accepted.

Section 10. *Presumption of Assent*. A Director of the Association who is present at a meeting of the Directors at which action on any Association matter is taken shall be presumed to have assented to the action taken unless his dissent shall be entered in the Minutes of the meeting or unless he shall file his written dissent to such action with the person acting as the secretary of the meeting before the adjournment thereof, or shall forward such dissent by registered mail to the Association promptly after he receives the Minutes of the meeting. Such right to dissent shall not apply to a Director who voted in favor of such action.

Section 11. *Meetings Held Electronically*. Notwithstanding anything to the contrary herein, any meeting of the Board of Directors may be held by telephone conference, video conference, or other commonly-accepted electronic means.

Section 12. *Removal of Director*. Following the expiration of the Control Period, a Director may be removed from the Board by the vote of a majority of the voting power of the Board of Directors exclusive of the Director in question, if it is determined that the subject Director is obstructing in bad faith the legitimate activities and business of the Association. The replacement of a Director thus removed shall be made as provided in Section 7.

ARTICLE XI – OFFICERS

Section 1. *Number*. The officers of the Association shall be a President, a Secretary, and a Treasurer, each of whom shall be initially appointed by the Developer and thereafter elected by a majority of the voting power of the Directors, subject at all times during the Control Period to the approval of the Developer. Such other officers and assistant officers as may be deemed necessary may be elected or appointed by the Board of Directors. Any two or more offices may be held by the same person.

Section 2. *Election and Term of Office*. The officers of the Association shall be elected annually at the annual meeting of the Directors or at such other time as the Directors shall determine. Each officer shall hold office until a successor shall have been duly elected and shall

have qualified or until the officer's death or resignation or shall have been removed in the manner hereinafter provided.

Section 3. *Resignations*. Any officer may resign at any time by delivering a written resignation either to the President or to the Secretary. Unless otherwise specified therein, such resignation shall take effect upon delivery.

Section 4. *Removal of Officer*. Any officer or agent may be removed by the Board of Directors whenever in their judgment the best interests of the Association will be served thereby. Any such removal shall require a majority of the voting power of the Board of Directors, exclusive of the officer in question if the officer is also a Director, and subject at all times during the Period of Developer Control, to the approval of the Developer, whether or not the Developer or its designee is the subject of the proposed removal.

Section 5. *Vacancies*. If a vacancy occurs in any office because of death, resignation, removal, disqualification, or otherwise, or if a new office shall be created, such vacancy may be filled for the unexpired portion of the term.

Section 6. *President*. The President shall be the chief administrative officer of the Association. The President shall preside at all meetings of the Members and at meetings of the Board of Directors. The President shall exercise such duties as customarily pertain to the office of President and shall have general and active supervision over the property, business, and affairs of the company and over its several officers. The President may appoint officers, agents, or employees other than those elected by Members or appointed by the Board of Directors. The President may sign, execute, and deliver in the name of the Association powers of attorney, contracts, bonds, and other obligations, and shall perform such other duties as may be prescribed from time to time by the Board of Directors or by the Bylaws.

Section 7. *Vice-President*. The office of Vice-President is optional. If a Vice-President is elected or appointed by the Board of Directors, he or she shall have such powers and perform such duties as may be assigned by the Board of Directors or the President. In the absence or disability of the President, the Vice-President shall perform the duties and exercise the powers of the President. A Vice-President may sign and execute contracts and other obligations pertaining to the regular course of his duties.

Section 8. *Secretary*. The Secretary shall keep the minutes of all meetings of the Members and of the Board of Directors and, to the extent requested by the Board of Directors or the President, the minutes of meetings of all committees. The Secretary shall cause notice to be given of meetings of Members, of the Board of Directors, and of any committee appointed by the Board. The Secretary shall have custody and general charge of the records, documents, and papers of the Association not pertaining to the performance of the duties vested in other officers, which shall at all reasonable times be open to the examination of any Director. The Secretary may sign or execute contracts with the President or a Vice-President in the name of the Association and shall perform such other duties as may be prescribed from time to time by the Board of Directors or by the Bylaws.

Section 9. *Treasurer*. The Treasurer shall, subject to the direction of the President have general custody of the collection and disbursement of funds of the Association. The Treasurer shall endorse on behalf of the Association checks, notes, and other obligations received by the Association, and shall deposit the same to the credit of the Association in such bank or banks or depositories as the Board of Directors may designate. The Treasurer shall enter or cause to be entered regularly in the books of the Association full and accurate account of all monies received and paid on account of the Association; shall at all reasonable times exhibit the books and accounts to any Director of the Association; and whenever required by the Board of Directors or the President shall render a statement of accounts. The Treasurer shall perform such other duties as may be prescribed from time to time by the Board of Directors or by the bylaws.

Section 10. *Other Officers*. Other officers shall perform such duties and have such powers as may be assigned to them by the Board of Directors.

Section 11. *Professional Manager*. The Association may employ and appoint a professional manager to perform functions otherwise reserved to officers of the Association. The professional manager shall have general charge of the business operations of the Association, subject to the provisions of Article VIII of these Bylaws and subject to the directions of the President and Board of Directors.

ARTICLE XII – COMMITTEES

The Board of Directors may appoint such committees as it may determine, which shall have such powers and duties as shall from time to time be prescribed by the Board. A majority of the members of any committee may fix its rules of procedure.

ARTICLE XIII – POWERS AND DUTIES

Section 1. *Contracts*. Subject to The Board of Directors may authorize any officer or officers, agent or agents, to enter into any contract to execute and deliver any instrument in the name of and on behalf of the Association, and such authority may be general or confined to specific instances.

Section 2. *Loans*. No loan or advances shall be contracted on behalf of the Association or other evidence of its obligation under any loan or advance shall be issued in its name, unless and except as authorized by at least two-thirds (2/3) of the voting power of the Board of Directors. Any such authorization may be general or confined to specific instances.

Section 3. *Deposits*. All funds of the Association not otherwise employed shall be deposited from time to time to the credit of the Association in such banks, trust companies, or other depositories as the Board of Directors may select, or as may be selected by any officer or agent authorized to do so by the Board of Directors. Deposit and operating accounts for the Association shall be established and maintained as provided in the Declaration.

Section 4. *Checks and Drafts*. All notes, drafts, acceptances, checks, endorsements, and evidences of indebtedness of the Association shall be signed by such officer or officers or such agent or agents of the Association and in such manner as the Board of Directors from time to time

may determine. Endorsements for deposit to the credit of the Association in any of its duly authorized depositories shall be made in such manner as the Board of Directors from time to time may determine.

Section 5. *Limitations.* Notwithstanding anything to the contrary herein, no action (whether administrative, financial, or relating to the scope of any work to be performed in the Common Area) shall be taken by the Association, Board of Directors, any Director, or any officer of the Association unless and until that action has been approved by the vote of a majority of the voting power of the Association. No work shall be commenced or performed in the Common Area unless and until it has been approved by the vote of a majority of the voting power of the Association. No contract shall be entered into for goods or services to be provided to the Common Area or the Association without prior approval by the vote of a majority of the voting power of the Association. The Directors may not delegate their responsibility and power to consider and vote on Association matters.

ARTICLE XIV – INDEMNIFICATION

Section 1. *Indemnification*. No officer or Director shall be personally liable for any obligation of the Association or for any duties or obligations arising out of any acts or conduct of said officer or Director performed for or on behalf of the Association. The Association shall and does hereby indemnify and hold harmless each person and his or her heirs and administrators who is, has been, or who shall serve at any time hereafter as a Director or officer of the Association, its predecessors or successors in interest, from and against any and all claims, judgments, and liabilities to which such persons shall become subject by reason of their having heretofore or hereafter been a Director or officer of the Association, its predecessors or successors in interest, or by reason of any action alleged to have been heretofore or hereafter taken or omitted to have been taken by any such Director or officer, and shall reimburse each such person for all legal and other expenses reasonably incurred in connection with any such claim or liability, including power to defend such person from all suits or claims as provided for under the provisions of the laws of the State of Utah; provided, however, that no such person shall be indemnified against, or be reimbursed for, any expense incurred in connection with any claim or liability arising out of the person's own gross negligence or willful misconduct. The rights accruing to any person under the foregoing provision of this section shall not exclude any other right to which the person may lawfully be entitled, nor shall anything herein contained restrict the right of the Association to indemnify or reimburse such person in any proper case, even though not specifically provided for herein. The Association, its Directors, officers, employees, and agents shall be fully protected in taking any action or making any payment, or in refusing so to do in reliance upon the advice of counsel.

Section 2. *Insurance*. The Association may purchase and maintain insurance on behalf of any person who is or was a Director or officer of the Association against any liability asserted against such person and incurred by such person in any such capacity, or arising out of such person's status as such, whether or not the Association would have the power to indemnify the person against liability under the provision of this section or of the corporation laws of the State of Utah.

Section 3. *Settlement by Association*. The right of any person to be indemnified shall be subject always to the right of the Association by its Board of Directors, in lieu of such indemnity, to settle any such claim, action, suit, or proceeding at the expense of the Association by the payment of the amount of such settlement and the costs and expenses incurred in connection therewith.

ARTICLE XV – WAIVER OF NOTICE

Whenever any notice is required to be given to any Member or Director of the Association under the provisions of these Bylaws, or under the provisions of the Articles of Incorporation, or under the provisions of the laws of the State of Utah, a waiver thereof in writing signed by the person or persons entitled to such notice, whether before or after the time stated herein, shall be deemed equivalent to the giving of such notice of such meetings.

ARTICLE XVI – AMENDMENTS

These Bylaws may only be altered, amended, repealed, or new bylaws adopted by a majority of the voting power of the Members at any regular or special meeting. Any amendment to these Bylaws shall be certified by either the President or the Secretary of the Association and recorded in the office of the Weber County Recorder.

CERTIFICATE OF SECRETARY

I, the undersigned, being the Secretary of Ben Lomond Views Master Community Association, do hereby certify the foregoing to be the Bylaws of said Association as adopted by the Board of Directors on the____ day of _____, 2021.

_____
Secretary

EXHIBIT J

DRAFT 06-15-21

When Recorded, Mail To:

David W. Slaughter
Snow Christensen & Martineau
10 Exchange Place, 11th Floor
Salt Lake City, Utah 84111

Tax Parcel Nos.: See Exhibit A

DECLARATION OF COVENANTS,

CONDITIONS AND RESTRICTIONS

FOR

BEN LOMOND VIEWS

(Harrisville, Utah)

DRAFT 06-15-21

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**DECLARATION OF COVENANTS,
CONDITIONS, AND RESTRICTIONS
FOR
BEN LOMOND VIEWS
A Master Planned Community**

(Harrisville, Utah)

THIS DECLARATION OF COVENANTS, CONDITIONS, EASEMENTS AND RESTRICTIONS FOR BEN LOMOND VIEWS ("Declaration"), dated as of _____, 2021, is made and executed by BLD Investment, LLC, a Utah limited liability company ("Declarant") for itself, its successors and assigns.

RECITALS

A. Declarant is the owner of certain real property located in Weber County Utah, more particularly described on the attached Exhibit A ("Property"), by this reference made a part hereof. By executing and recording this Declaration, Declarant declares that the property described in Exhibit A, and any additional property made subject to this Declaration in the future by amendment or supplement, is subject to the terms, covenants, conditions and restrictions set forth in this Declaration and such property shall constitute the planned multi-use community of "Ben Lomond Views" (the "Community").

B. The Declaration, and any amendment or supplement thereto, shall run with the title to the Property, shall govern the Community and use of such property, and shall be binding upon current and future Owners of any portion of the Property and their respective heirs, successors, and assigns, and any other person or entity that now or hereafter has any legal, equitable, or beneficial interest in any portion of the Property. By taking title to any property within the Community, all Owners join in and accept the intent, purposes, and objectives of this Declaration and agree to be bound by it.

C. In furtherance of the development plan for the Community, Declarant, has created the Ben Lomond Views Owners Association, Inc. which entity shall possess the power to own and maintain the Common Areas, administer and enforce this Declaration, and to collect and disburse assessments and charges hereinafter created in connection with the operation, maintenance, repair, and replacement of the Common Area. It is intended that this Declaration shall serve as a binding contract between the Association and each Owner; however, nothing herein, is intended to create a contractual relationship between Declarant and the Association or Declarant and any Owner, or to inure to the benefit of any third-party. Additionally, it is not intended that this Declaration be read in conjunction with any deed or real estate purchase contract to create privity of contract between Declarant and the Association.

D. Declarant may, without obligation, amend and supplement this Declaration from time to time, in the discretion of Declarant, to formally include additional real property within the Community and to cause such additional property to become subject to the terms and conditions of this Declaration, or to accomplish any other purpose desired by Declarant.

NOW, THEREFORE, DECLARANT hereby declares that all real property within the Community, as defined and described herein, shall be held, sold, conveyed, transferred, leased, subleased, used and occupied subject to the covenants, conditions, restrictions, and easements set forth herein, all of which shall run with the Community and all portions thereof and shall be binding upon all parties having or acquiring any right, title, or interest in and to all or any portion of the Community, and the respective heirs, successors, and assigns of such parties.

ARTICLE 1
DEFINITIONS

Unless the context clearly indicates otherwise, certain terms as used in this Declaration and the foregoing Recitals shall have the meanings set forth in this Article 1. Unless the context clearly requires otherwise, the masculine, feminine and neuter genders and the singular and the plural shall be deemed to include one another, as appropriate.

1.1 "Act" shall mean the Community Association Act codified beginning at Utah Code § 57-8a-101 et seq., in effect at the time this Declaration is recorded, and as such may be amended from time to time.

1.2 "Additional Land" shall mean, refer to, and consist of any real property that is annexed into the Community by the Declarant.

1.3. "Allocated Interest" shall mean the interest of that Owner which shall be applicable for the purposes of voting, the payment of Assessments, and for other purposes indicated in this Declaration or the Act. Each Lot within the Community is assigned an equal Allocated Interest and one equal vote, subject to the limitations set forth in this Declaration.

1.4 "Articles" shall mean the Articles of Incorporation of the Association filed with the Utah Division of Corporations and Commercial Code, or the chartering document of any other legal entity, if any shall be formed for the Association, as the same may from time to time be amended or supplemented.

1.5 "Assessment" shall mean any monetary charge imposed or levied on an Owner by the Association as provided in this Declaration or other Governing Document..

1.6 "Assessable Property" shall mean any Lot, Parcel or Condominium Unit, except such part or parts thereof as may from time to time constitute Common Areas, municipal property or other exempt property.

1.7 "Assessment Lien" shall mean the lien created and imposed by Article 11.4.

1.8 "Assessment Period" for General Assessments shall mean the fiscal year designated by the Board and for Special Assessments the period established as set forth in Article 10.9.

1.9 "Association" shall mean the Utah nonprofit corporation to be organized by Declarant to administer and enforce the Covenants and to exercise the rights, powers and duties set forth in this Declaration, its successors and assigns, membership of which shall include each Owner in the Community. Declarant hereby reserves the exclusive right to cause such Association to be incorporated and intends to name the Association the "BEN LOMOND VIEWS ASSOCIATION, INC." If the Owner are ever organized as another type of entity or if the Owners act as a group without legal organization, "Association" as used in this Declaration shall refer to that entity or group.

1.10 "Board" shall mean the governing body of the Association with primary authority to operate and manage the affairs of the Association, elected pursuant to the Bylaws.

1.11 "Board Member" or "Director" shall mean a duly qualified and elected or appointed member of the Board.

1.12 "Bylaws" shall mean the Bylaws of the Association as the same may from time to time be amended or supplemented. No amendment to the Bylaws shall be effective until it is recorded.

1.13 "Common Area" shall mean the real and personal property for the common use and enjoyment of the Owners not dedicated to a municipality and shall include, but not be limited to: (a) the

areas designated as Common Area on the recorded Plats of the Community, and any improvements thereon, (b) open space lots not privately held; (c) trails, boundary fences, sidewalks, streetlights, parking areas, or other improvements located within the designated Common Areas on the Plats; (d) structures built within the Common Areas on the Plats including any clubhouse, pool, sports field, sports courts, signs or other common amenities or facilities; (e) all Limited Common Areas; (f) private roadways, lanes, alleys or cul-de-sacs within the Community; (g) roundabouts, park strips, or other areas owned by a municipality that the Association is required to maintain; and (h) all other parts of the Community outside of the Lots not dedicated to the public or which are necessary or convenient to the Community's existence, maintenance, safety, or normally in common use. In accordance with the Plat, the Common Areas and facilities shall be owned by the Association.

1.14 "Common Expenses" shall mean the actual and estimated costs incurred for the general benefit of all Owners including: (a) maintenance, management, operation, repair, and replacement of the Common Area which is maintained by the Association; (b) maintenance, repair, and replacement of those aspects of the Lots which are maintained by the Association; (c) management and administration of the Association, including, but not limited to, compensation paid by the Association to managers, accountants, attorneys, consultants, and employees; (d) extermination, security, gardening, common utilities, and other related services; (e) insurance and bonds required or allowed by this Declaration; (f) the establishment of reserves; (g) other miscellaneous charges incurred by the Association as provided for or allowed in the Act or the Governing Documents; (h) expenses arising under any Joint Use Agreement; and (i) any other expenses of the Association arising from the operation of the Association and not otherwise defined or precluded by the Governing Documents or any applicable law.

1.15 "Community" shall mean the property described in Exhibit A and all land, structures, and improvements thereon including the Lots, roads, open spaces, Common Areas, and Limited Common Areas. The Community shall also include any Additional Land annexed into the Association and made subject to this Declaration.

1.16 "Control Period" shall mean the period of time during which the Declarant may act as the Board of Directors or appoint Board Members. Such period of time shall commence on the date this Declaration is recorded and terminate on the occurrence of the earliest of the following events: (i) six (6) months after the date on which all of the Lots, and all of the Additional Land that may be annexed, have been conveyed to purchasers other than a Declarant or its successors, assigns, and affiliates; or (ii) the Declarant executes and records a written waiver of its right to control the Association. The Special Declarant Rights contained within this Declaration may last beyond the Control Period for the maximum length permitted by law. If the Declarant elects to waive one or more, but not all, of its Special Declarant Rights, then all Special Declarant Rights not waived shall remain in full force and effect.

1.17 "Covenants" shall mean the covenants, conditions, restrictions, assessments, charges, servitudes, liens, reservations and easements set forth in this Declaration.

1.18 "Declarant" shall mean BLD Investment, LLC, a Utah limited liability company, or its successors or assigns. The Declarant may assign all or part of its rights hereunder.

1.19 "Declaration" shall mean this Declaration of Covenants, Conditions and Restrictions for Oquirrh West, including all attached exhibits, which are incorporated by reference, and any and all amendments to this Declaration.

1.20 "Deed" shall mean a deed or other instrument conveying the fee simple title in a Lot, Parcel or Condominium Unit.

1.21 "Design Guidelines" shall mean those requirements governing the site location and architectural design of Dwellings, buildings, and other structures and improvements within the Community as adopted by the Board or DRC as provided herein.

1.22 "Design Review Committee" or "DRC" shall mean the Board, or if so appointed by the Board pursuant to Article 10, the Ben Lomond Views Design Review Committee.

1.23 "Dwelling" shall mean any residential structure built or to be built on any Lot within the Community, including the attached garage. Dwellings shall include both attached and detached single-family residences.

1.24 "Governing Documents" shall mean and refer to the Declaration, Plat, Bylaws, Rules, Articles, Joint Use Agreement, Design Guidelines, and any other written instrument by which the Association may exercise power, manage, maintain, or otherwise affect the Community.

1.25 "Joint Use Agreement" shall mean an agreement recorded in the Weber County records that defines the rights and obligations for the Association and its Members and the rights and obligations of the neighboring homeowners association or property owner(s) to use and share in the maintenance and repair costs of Common Area facilities or amenities. All costs incurred for compliance with any Joint Use Agreement shall be a Common Expense.

1.26 "Landscaping" shall mean and refer to the grass, trees, shrubs, bushes, flowers, plants and like improvements located within the Community, as well as the appurtenant sprinkling and irrigation systems.

1.27 "Limited Common Area" shall mean a portion of the Common Area specifically designated in this Declaration or the Plat for the exclusive use of Owners of one or more Lots to the exclusion of other Owners. Conveyance of a Lot includes the use of the Limited Common Area designated for the use of the Owner of the Lot. Whether or not indicated on the Plat, the Limited Common Areas shall include facilities appurtenant to the Lots including porches, balconies, driveways, decks, and portions of the Common Areas bounded by approved fences on the Lots. All installations or modifications of Limited Common Areas shall be approved by the Association and shall be subject to the provisions in this Declaration and the Design Guidelines. The Board shall have the power and discretion to determine the Limited Common Area boundaries if the Governing Documents are found ambiguous.

1.28 "Lot" shall mean any numbered building Lot or parcel shown on the Plats within the Community. The term Lot as used in this Declaration shall include all separately owned and identified parcels of real property including but not limited to single family lots, multi-family lots, and townhome lots. The term Lot shall include any Dwelling, structure, or other improvement constructed thereon. With respect to Lots containing attached Dwellings, the Lot shall extend to the center of the Party Wall, which shall form the boundary of the Lots sharing that wall. Subject to dividing lines between Lots, any above-ground structure that extends beyond the vertical plane of the ground-level boundary of the Lot is part of the Lot if it: (1) is part of and an integral part of the Dwelling's structure (such as bay windows, pop-outs, eves, etc., not to include fences, or other appurtenant structures that merely connect to the structure); or (2) was constructed as part of the original construction of the Lot.

1.29 "Manager" shall mean any entity or Person engaged by the Board of Directors to manage the affairs of the Association and Community.

1.30 "Member" shall mean and refer to a Lot Owner.

1.31 "Millennium Park" shall mean and refer to that certain Harrisville City park located north of and bordering the Community, to which the Declarant (and, by assignment, the Association) has and holds certain easement rights and related obligations for improvements and maintenance pursuant to the terms of that certain Millennium Park Easement Agreement dated June ____, 2021, attached hereto as Exhibit "B" and filed of record with the Weber County Recorder.

1.32 "Mortgage" shall mean and refer to a mortgage, deed of trust, or trust deed or the act of encumbering any Lot or any property by a mortgage, trust deed, or deed of trust.

1.33 "Mortgagee" shall mean any person or entity named as a mortgagee of a mortgage or beneficiary under or holder of a deed of trust.

1.34 "Occupant" shall mean any Person living, dwelling, visiting, using, entering into, or staying in a Dwelling in the Community, including, without limitation, family members, tenants, lessees, guests, representatives, and invitees of an Owner or an Occupant. Occupants shall be bound by the restrictions in this Declaration and shall be liable for any fines that are assessed for violations of the Governing Documents.

1.35 "Owner" shall mean the Person or Persons who are vested with record title to a Lot, and whose interest in the Lot is held (in whole or in part) in fee simple, according to the records of the County Recorder of Weber County; however, Owner shall not include a trustee for a deed of trust.

1.36 "Party Wall" shall mean a wall, including without limitation a foundation wall, that forms part of a Dwelling and is located on or adjacent to a boundary line between two or more attached Dwellings that are owned by more than one (1) Owner and is used or is intended to be used by the Owners of the benefitted Dwellings as a structural partition wall. A Party Wall may be separated by a sound board or other component between two or more Dwellings.

1.37 "Person" shall mean a natural individual, corporation, estate, limited liability company, partnership, trustee, association, government, governmental subdivision or agency, or any other legal entity with the legal capacity to hold title to real property.

1.38 "Plat" shall mean all record of survey maps of the Ben Lomond Views Subdivision, recorded in the records of the Weber County Recorder and all amendments and supplements thereto, along with any Additional Land annexed or to be annexed into the Community. The Plat is hereby incorporated into and made an integral part of this Declaration, and all requirements and specifications set forth on the Plat and required by the Act are deemed included in this Declaration. If any conflict exists between the Plat and this Declaration, the Declaration shall control.

1.39 "Recording" or "Record" shall mean placing an instrument of public record in the office of the County Recorder of Weber County, Utah, and "Recorded" shall mean having been so placed of public record.

1.40 "Rules" shall mean and refer to the rules, resolutions, policies, Design Guidelines, and regulations adopted by the Board for the Association.

1.42 "Service Area" shall mean a geographical area in the Community in which the Lots within that area receive special benefits or services from the Association that the Association does not provide to all Lots within the Community.

1.43 "Supplemental Declaration" shall mean a document recorded with the Weber County Recorder by the Declarant or Association to make additional real property subject to the terms of this Declaration, or which withdraws real property from the restrictions of this Declaration.

1.44 "Terms and Conditions" shall mean any one or all of the terms, covenants, rights, obligations, and restrictions set forth in the Governing Documents.

ARTICLE 2
SUBMISSION OF PROPERTY TO DECLARATION

2.1 General Declaration Creating the Community. Declarant hereby declares that all of the real property within the Community, together with any Additional Land annexed pursuant to Article 16 of this Declaration, is and shall be held, conveyed, hypothecated, encumbered, leased, occupied, built upon or otherwise used, improved or transferred, in whole or in part, subject to this Declaration and the Terms and

Conditions, as amended or modified from time to time, which Terms and Conditions shall, to the extent they are included in recorded documents, constitute equitable servitudes and covenants and conditions running with the land and shall be binding upon and inure to the benefit of the Association, the Declarant, and each Owner, including their respective heirs, executors, administrators, personal representatives, successors, and assigns. By acquiring any interest in a Lot or parcel of property within the Community, such Owner consents to, and agrees to be bound by each and every Term and Condition in the Governing Documents. This Declaration shall not be construed to prevent the Developer from dedicating or conveying portions of the Community, including but not limited to streets or roadways, for uses other than as a Lot, Parcel, or Association Land.

2.2 Purpose. Declarant intends that this Declaration establish a governance structure and a system of standards and procedures for the development, expansion, administration, maintenance, and preservation of Ben Lomond Views as a master planned community. The Association is intended to be an integral part of the Community as it will own, operate, and maintain various Common Areas and improvements and shall administer and enforce this Declaration and the other Governing Documents referenced in this Declaration for the common benefit of all owners of the Community.

2.3 Nature of the Community. The Community is a planned residential community consisting of Lots with both attached and detached Dwellings. The densities for the Community will be set forth on the Plat and may be further defined or clarified in a development agreement with governmental authorities. All improvements shall be constructed in a style and of materials determined by the Declarant during the Control Period, and afterwards, by the DRC. The Community is subject to refinement by Declarant, or as required by local governmental ordinances.

2.4 Community Name. The Community is named "Ben Lomond Views" and is located entirely in Weber County, Utah. The name used by the Declarant for the Community may be different than the names identified on development agreements and Plats. The Association and the Community are not a cooperative.

2.5 Supplement and Exclusions to Declaration. At any time during the Control Period, Declarant or its assigns may add or remove any real property to or from the terms of this Declaration by recording with the Weber County Recorder a Supplement or Exclusion to this Declaration which (i) describes such property, (ii) declares that such property is or is not subject to this Declaration, and (iii) is signed and acknowledged by Declarant.

2.6 Association Bound. Upon issuance of a Certificate of Incorporation (or other documents evidencing valid existence) to the Association, the Covenants shall be binding upon and shall benefit the Association.

2.7 Municipal Authority's Property. From time to time, the Declarant may, in its sole and exclusive discretion and without the vote of the Members, convey, assign, or transfer by Deed or other written instrument certain Community Areas to the applicable Municipal Authority. Once any such Community Areas are conveyed, assigned or transferred to a Municipal Authority, they shall be Exempt Property and shall constitute Municipal Authority Property. Notwithstanding the foregoing, the Association has certain ongoing maintenance responsibilities for the property identified as Millennium Park, which, although property of Harrisville City, is subject to that certain "Millennium Park Easement Agreement" of record between the City and Declarant.

2.8 Special Service Districts. The Community is part of the Four Mile Special Service District (the "Special District"), formed by Harrisville City to provide approved public services to the Project, including any Community-specific services for which the Association is required, but may be unable, to provide hereunder. Lot owners in the Community hereby and forever acknowledge and accept that, subject to applicable law, the "Special District" and any other special district serving the Community shall

have the right and authority to levy taxes, charges and/or assessments upon owners of taxable property within the special district. Lot owners shall also be subject to the rules and regulations developed by any special district governing its services.

2.9 Amenities.

2.9.1. Declarant or other Persons may, without obligation, develop certain Amenities as an integral part of the Community including, without limitation, facilities for recreational, cultural, social and other purposes.

2.9.2. The Association shall have no right to grant to any Person any ownership interest in, or right to use, any Amenity. No Person shall have any ownership interest in, or presumptive right to use, any Amenity by virtue of being an Owner of a Lot, Dwelling or Parcel, or 'by virtue of being a Member of the Association. Rights to use the Amenities will be granted only to such Persons, and on such terms and conditions, as may be determined from time to time by the Association.

2.10 . Zoning. Declarant reserves for itself the unilateral right to apply for zoning, entitlements, and other land use approvals from the applicable Municipal Authority for all or a part of the Community, including Lots and Parcels sold to Owners, provided that no such application shall have a materially adverse effect on a or Lot. Each Owner hereby irrevocably constitutes and appoints the Declarant as each such Owner's true and lawful attorney-in-fact in such Owner's name, place, and stead for the purpose of signing any applications or other documents necessary for such approvals. Acceptance by any Owner of a deed or other instrument of conveyance shall constitute appointment of the attorney-in-fact as herein provided. All Owners hereby specifically acknowledge and agree that they shall cooperate with Declarant in all such applications.

2.10 Development Plan. Notwithstanding any other provision of this Declaration to the contrary, Declarant, without obtaining the consent of any other Owner or Person, shall have the right to make changes or modifications to its plan of development with respect to any property owned by Declarant in any way that Declarant desires including, but not limited to, changing all or any portion of the property owned by the Declarant or changing the nature or extent of the uses to which such property may be devoted.

2.11 Common Areas Improvements. So long as Declarant owns a Parcel or Lot within the Community, Declarant reserves the unilateral right to construct Improvements on any area of the Common Areas and modify the location, type and nature of Common Areas as it shall determine in its sole and exclusive discretion, including, without limitation, the right to construct or create storage facilities, walking trails, picnic areas, covered porches, patios, or other Improvements thereon. Such construction and relocation rights shall not be subject to the consent of the Owners, the Board, Mortgagees or any other Person. After the termination of Declarant's rights under this Declaration, the Board shall have the right to exercise such construction and relocation powers in connection with the Common Areas. In furtherance of this right, Declarant reserves for itself, and others it may designate, the right to inspect, monitor, test, redesign, and correct any Improvement or condition that may exist on any portion of the Community, including Parcels, Lots and Common Areas, and a nonexclusive easement of access throughout the Community to the extent reasonably necessary to exercise such right.

2.12 Right to Develop. Notwithstanding anything contained herein to the contrary, no provision of this Declaration is intended or shall be construed to prevent or limit Declarant's rights to develop the Community and to exercise the rights reserved by Declarant as hereinafter provided. Nothing in this Declaration shall be construed to require Declarant, or Declarant's successor or assigns, to develop any Parcel, Lot or other Improvements in any manner whatsoever. Any right or any interest reserved or contained in this Declaration for the benefit of Declarant may be transferred or assigned by Declarant,

either separately or with one or more other such rights or interests, to any person, corporation, partnership, Association, or other entity, only by written instrument executed by both Declarant and the transferee or assignee and Recorded. Upon such Recording, Declarant's rights and obligations under this Declaration shall cease and terminate to the extent provided in such instrument.

ARTICLE 3
COMMUNITY STRUCTURE AND ORGANIZATION

3.1 The Declarant. The Declarant has established the Community and has set forth a governance structure for the Community through the Governing Documents. The Declarant has reserved various rights in the Governing Documents with respect to the development and administration of the Community. The Declarant may exercise these rights throughout the period of time that the Declarant or any of its affiliates own real property in the Community or has an unexpired option to expand the Community pursuant to the Governing Documents. The Declarant may assign its status and rights as the Declarant under the Governing Documents to any affiliate, or person who takes title to any portion of the property subject to this Declaration for the purpose of development and/or sale.

3.2 The Association. The Declarant has established the Ben Lomond Views Owners Association, Inc. as the primary entity responsible for administering the Community in accordance with the Governing Documents. The Association may exercise all rights and powers that the Governing Documents and Utah law expressly grant to it, as well as any right and powers that may reasonably be implied under the Governing Documents. The Members of the Association shall be the Owners of Lots within the Community, including the Declarant. The duties and powers of the Association shall relate to the Community as a whole and the ownership, use, and maintenance of the Common Areas, including the imposition of assessments for such purposes.

3.3 Service Areas. The Declarant or the Board may create and place Lots into one or more Service Areas in which the Lots share Limited Common Areas or receive special benefits or services from the Association that it does not provide to all Lots within the Community. The creation of a Service Area, the designation of Lots subject to a Service area, and the scope of services to be performed for a Service Area shall be set forth in a Board resolution, or similar Association document. A Lot may be assigned to more than one Service Area, depending on the number and types of special benefits or services it receives. A Service Area may be comprised of Lots of more than one housing type and may include Lots that are not contiguous. The Declarant may designate Service Areas and assign Lots to a particular Service Area at any time prior to the expiration of the Control Period. Declarant may also unilaterally amend Service Area boundaries. Following the Control Period, the Board may, by a resolution, designate Service Areas.

After the expiration of the Control Period, the Owners of Lots within each Service Area may (but shall not be required to) elect a "Service Area Committee" of no more than five (5) members to represent and act on behalf of the Owners with respect to the services and benefits that the Association provides to the Service Area. Service Area Committees are subordinate to the Board and shall not have any powers, duties, or responsibilities beyond those specifically assigned by the Board in a written resolution. However, any assessment or action taken by the Association directed at, or primarily affecting a Service Area shall be made in consultation with such Service Area Committee.

3.4 Allocated Interest. Each Lot is entitled to a vote equal to its Allocated Interest for all matters related to the Association that Owners are permitted or required to vote or approve, and such votes shall be cast in accordance with the Bylaws. The Allocated Interest of each Lot shall have a permanent character and shall not be altered without the express affirmative written consent of at least sixty-seven percent (67%) of the total Allocated Interest of the Association. A recorded amendment or Supplement to this Declaration describing the approved changes is required to modify Allocated Interests.

Unless or until modified by an amendment to this Declaration, each Lot shall have an equal Allocated Interest and the Owner of each Lot shall be entitled to one (1) vote per Lot owned. Notwithstanding the foregoing, the Declarant shall have the power to unilaterally adjust the Allocated Interest of each Lot as Additional Land and Lots are added or withdrawn from the Community through an amendment or supplement to this Declaration.

3.5 Declarant Voting Rights. The Declarant shall be entitled to a vote equal to twenty-five (25) times the Allocated Interest assigned to each Lot the Declarant owns in the Community for all matters (if any) in which Members are entitled to vote. Declarant's voting rights shall extend beyond any termination of the Control Period, so long as the Declarant owns one or more Lots in the Community. The foregoing voting rights are to be in addition to all Special Declarant Rights contained in the Governing Documents during the Control Period including, but not limited to, Declarant's unilateral right to control the Board, expand the Community, act as the Design Review Committee, and amend the Governing Documents.

3.6 Plat. The Declarant shall have the right to annex property to the Community, record plats for the development of property within the Community, and amend all Community Plats during the Control Period in Declarant's sole discretion. The dimensions, descriptions, and identification of boundaries of any plat made subject to this Declaration, are hereby incorporated into and made a part of this Declaration.

ARTICLE 4
ORGANIZATION OF ASSOCIATION

4.1 Organization. The Association shall serve as the governing organizational body for the Community. The Association shall make provisions for the maintenance, repair, replacement, administration and operation of the Common Area and Common Expenses, and other matters as provided in the Act and the Governing Documents. The Association shall have all rights and powers granted to it under the Act and the Governing Documents.

4.2 Formation of Association. The Association shall be a Utah nonprofit corporation charged with the duties and invested with the powers prescribed by law and set forth in the Articles, Bylaws and this Declaration. Neither the Articles nor Bylaws shall, for any reason, be amended or otherwise changed or interpreted so as to be inconsistent with this Declaration.

4.3 Registration with the Department of Commerce. The Association shall register with the Utah Department of Commerce within ninety (90) days of the Recordation of this Declaration. Within ninety (90) days after a change of any information provided in the Association's registration with the Department of Commerce, the Board shall submit an updated registration in the manner established by the Department of Commerce and the Act.

4.4 Board of Directors and Officers. The affairs of the Association shall be conducted by a Board of at least three (3) but no more than seven (7) directors (odd numbered totals only), elected by the Members, subject to the Declarant's right of appointment under Article 19.3.8 during the Control Period, and such officers as the Board may elect or appoint in accordance with the Articles and the Bylaws as the same may be amended from time to time. The Board may also appoint various committees and appoint a Manager who, subject to the direction of the Board, shall be responsible for the day-to-day operation of the Association. The Board shall determine the compensation to be paid to the Manager. The Board's rights and responsibilities shall include all rights and responsibilities of the Association, as provided in Article 5 below, and as otherwise provided in the Association's Bylaws. The Board shall not, however, be responsible for those duties and areas of operation specifically designated under the Governing Documents as the responsibility of the Design Review Committee, unless and until the Design Review Committee is terminated or ceases to operate, in which case the Board shall perform the duties and obligations of the Design Review Committee.

4.5 Personal Liability. No director or member of any committee of the Association (including but not limited to the Design Review Committee), no officer of the Association and no Manager or other employee of the Association shall be personally liable to any Member or to any other person, including the Association, for any damage, loss or prejudice suffered or claimed on account of any act, omission, error or negligence of the Association, the Board, the Manager, any representative or employee of the Association or any committee, committee member or officer of the Association; provided, however, the limitations set forth in this Article 4.5 shall not apply to any person who has failed to act in good faith or has engaged in willful or intentional misconduct. In exercising the Association's rights and powers, making decisions on behalf of the Association, and conducting the Association's affairs, Board directors shall be subject to, and their actions shall be judged in accordance with, the standards set forth in the Bylaws.

ARTICLE 5
ASSOCIATION RIGHTS & RESPONSIBILITIES

5.1 Association's General Rights and Powers. In addition to the rights and powers of the Association set forth in this Declaration, the Association shall have such rights and powers as are set forth in its Articles and Bylaws. Such rights and powers, subject to the approval thereof by any agencies or institutions deemed necessary by Declarant, may encompass any and all things that a natural person could do or that now or hereafter may be authorized by law, provided such Articles and Bylaws are not inconsistent with the provisions of this Declaration and are necessary, desirable or convenient for effectuating the purposes set forth in this Declaration. After incorporation of the Association, a copy of the Articles and Bylaws of the Association shall be available for inspection at the office of the Association during reasonable business hours.

5.2 Specific Rights and Obligations. Without limiting any of the foregoing, the Association shall have the following specific rights and responsibilities.

5.2.1 Rights of Enforcement of Provisions of This and Other Instruments. The Association, as the agent and representative of the Owners and Members shall have the right to enforce, by any proceeding at law or in equity, the Covenants set forth in this Declaration and/or any and all covenants, restrictions, reservations, charges, servitudes, assessments, conditions, liens or easements provided for in any contract, deed, declaration or other instrument that (a) shall have been executed pursuant to, or subject to, the provisions of this Declaration, or (b) otherwise shall indicate that the provisions of such instrument were intended to be enforced by the Association or by Declarant. In the event suit is brought or arbitration is instituted or an attorney is retained by the Association to enforce the terms of this Declaration or other document as described in this Article 20 and the Association prevails, the Association shall be entitled to recover, in addition to any other remedy, reimbursement for attorneys' fees, court costs, costs of investigation and other related expenses incurred in connection therewith including but not limited to the Association's administrative costs and fees. Said attorneys' fees, costs and expenses shall be the personal liability of the breaching Owner and shall also be secured by the Assessment Lien against said Owner's or Lot. If the Association should fail to act within a reasonable time, any Owner shall have the right to enforce the Covenants set forth in this Declaration.

5.2.2 Maintenance. The Board shall make provisions for completing all maintenance, repair, and replacement requirements of the Association, including those obligations relating to Millennium Park. This shall include the right to modify, remove fixtures from, add fixtures and structures to, place signs upon, and otherwise modify the Common Area and Facilities. The Association shall do all such other and further acts that the Board of Directors deems necessary to preserve and protect the Common Area and the Community, in accordance with the general

purposes specified in this Declaration. The Association may set maintenance standards for all areas within the Community and may assess any Lot or Service Area for the costs of maintenance or repair that the Association, in its reasonable discretion, determines is necessary to bring such areas in compliance with the Community's standards.

5.2.3 Setting and Collecting Assessments. The Association shall establish, collect, and account for Assessments as necessary to operate the Community consistent with the requirements of the Governing Documents.

5.2.4 Paying Expenses. The Association shall provide for the payment of Common Expenses and any other obligations incurred by the Association. The Association shall apply all funds and property collected and received by it (including the Assessments, fees, loan proceeds, surplus funds and all funds and property received by it from any other source) for the common good and benefit of the Community and the Members and Residents by devoting said funds and property, among other things, to the acquisition, construction, alteration, maintenance, provision and operation, by any manner or method whatsoever, of any kind and all land, properties, Improvements, facilities, services, projects, programs, studies and systems, within the Community, that may be necessary, desirable or beneficial to the general common interests of the Community, the Members and the Residents. The following are some, but not all, of the areas in which the Association may seek to aid, promote and provide for such common benefit: social interaction among Members and Residents; maintenance of landscaping on Common Areas and public right-of-way and drainage areas within the Community; recreation; insurance; communications; ownership and operation of vehicle storage areas; transportation; health; utilities; public services; safety and indemnification of officers and directors of the Association. The Association also may expend its funds as otherwise permitted under the Community Act and the laws of the State of Utah.

5.2.5 Borrowing Power. The Association may borrow money in such amounts, at such rates, upon such terms and security, and for such periods as is necessary or appropriate as determined by the Board without a vote of the Members.

5.2.6 Title to Common Areas. The Association shall hold title to all Common Areas conveyed to it by the Declarant or other persons and shall pay all real property taxes and assessments levied upon any portion of the Common Areas, unless paid by the Owners, provided that the Association shall have the right to contest or compromise any such taxes or assessments. Upon approval of sixty-seven percent (67%) or more of the Allocated Interest of the Association, the Board shall have the authority to transfer title to Common Area real property owned by the Association to governmental entities for public use, or to individual third parties for private use. Any transfer of title to Common Area real property during the Control Period, shall also require Declarant approval.

5.2.7 Entering Lots. The Association acting through the Board, or its duly authorized agent, shall have the right at all times upon reasonable notice of at least forty-eight (48) hours to enter upon any Lot on the areas located outside the exterior boundaries of a Dwelling, without trespass, and regardless of whether or not the Lot Owner or Occupant thereof is present at the time, to abate any infractions, to fulfill its responsibilities, to exercise its rights, to make repairs, and to correct any violation of any of the Governing Documents. The notice set forth in this Article shall not be necessary in case of an emergency threatening other Dwellings, Occupants, or other parts of the Community. Nothing in this Article shall be construed to authorize the entry of the Association into the interior of a Dwelling without the consent of the Lot Owner unless there is an emergency threatening another Dwelling, the Occupants of another Dwelling, or the

structural integrity of a townhome building. Owners shall maintain up-to-date emergency contact information records with the Association, including any local representative an Owner may have for notice purposes. Owners shall be responsible for any costs incurred by the Association as a result of entering a Lot or Dwelling under this Article and shall defend, indemnify, and hold harmless the Association for all damages related to such entry, except for such damages resulting from intentional or willful misconduct.

5.2.8 Hiring Managers and Delegating Responsibilities.

5.2.8.1 The Association may hire a Manager to assist the Board in the management and operation of the Community and may carry out through the Manager, Manager's employees, or other agents those of its powers, obligations and functions in the Governing Documents employees, as it deems appropriate and that are properly subject to delegation, provided, however, that only the Board shall have the right to approve Association budgets, fines to Owners, and regular and special Assessments. Any powers and duties delegated to any Manager or other Person may be revoked by the Board at any time, with or without cause. The Board has no authority to enter any management agreement or contract inconsistent with the terms of the Governing Documents.

5.2.8.2 The Manager so engaged shall be an independent contractor and not an agent or employee of the Association, shall be responsible for managing the Community for the benefit of the Association and the Owners, and shall, to the extent permitted by law and by the terms of the agreement with the Association, be authorized to perform any of the functions or acts required or permitted to be performed by the Association itself.

5.2.8.3 Any such management agreement may be terminated by the Declarant without cause at any time during the Control Period. Any management agreement executed during or after the Control Period may be terminated by the Association without cause at any time after the termination of the Control Period. The above termination provisions shall not apply to any other types of service contracts.

5.2.9 Contracts with Others for Performance of Association's Duties. In addition to its rights to hire a Manager, and subject to the restrictions and limitations contained herein, the Association may enter into contracts and transactions with others, including the Declarant and its affiliated companies, and such contracts or transactions shall not be invalidated or in any way affected by the fact that one or more Board members or officers of the Association or members of any committee are employed by or otherwise connected with Declarant or its affiliates, provided that the fact of such interest shall be disclosed or known to the other Board members acting upon such contract or transaction, and provided further that the transaction or contract is fair and reasonable. Any such Board member, officer or committee member may be counted in determining the existence of a quorum at any meeting of the Board or committee of which he or she is a member that shall authorize any contract or transaction described above or grant or deny any approval sought by the Declarant, its affiliated companies or any competitor thereof and may vote thereat to authorize any such contract, transaction or approval with like force and effect as if he or she were not so interested.

5.2.10 Rules. The Association may promulgate and enforce Rules for the regulation and operation of the Community. This provision is intended to be interpreted broadly and permit the Association to adopt rules governing all activities and uses within the Community which the Association may legally enforce. If Rules are adopted, they shall be consistently and uniformly enforced. The Rules may address any issues including those addressed in any other Governing

Document. The Rules may supplement, clarify, and add detail to issues addressed in other Governing Documents so long as they do not contradict the same. The Association's determination as to whether a particular activity being conducted or to be conducted violates or will violate the Rules shall be conclusive, subject to a judicial determination if any is timely sought. Pursuant to Utah Code § 57-8a-218(15), the requirements of Utah Code §§ 57-8a218(1) through (13), except subsection (1)(b)(ii), are hereby modified to not apply to the Association. During the Control Period, the Declarant and the Declarant appointed Board (if any) shall be exempt from the rulemaking procedures of Utah Code § 57-8a-217.

5.2.10.1. Notwithstanding any provision in this Declaration to the contrary, no rule, regulation or action of the Association or Board shall unreasonably impede Declarant's right to develop the Community.

5.2.10.2. ALL OWNERS ARE GIVEN NOTICE THAT THE USE OF THEIR LOT, DWELLING OR PARCEL AND THE COMMON AREAS IS LIMITED BY THE. RULES AND THE DESIGN GUIDE, AS THE SAME MAY BE AMENDED, EXPANDED, AND OTHERWISE MODIFIED FROM TIME TO TIME. EACH OWNER, BY ACCEPTANCE OF A DEED, ACKNOWLEDGES AND AGREES THAT THE USE AND ENJOYMENT AND MARKETABILITY OF HIS, HER OR ITS LOT, DWELLING OR PARCEL CAN BE AFFECTED BY THIS PROVISION AND THAT THE RULES AND DESIGN GUIDE MAY CHANGE FROM TIME TO TIME. ALL PURCHASERS OF LOTS, DWELLINGS OR PARCELS ARE ON NOTICE THAT THE DECLARANT OR THE BOARD MAY ADOPT CHANGES TO THE RULES AND DESIGN GUIDE FROM TIME TO TIME. COPIES OF THE CURRENT RULES AND DESIGN GUIDE MAY BE OBTAINED FROM THE ASSOCIATION.

5.2.10.3. Before adopting, amending, modifying, canceling, limiting, creating exceptions to, or expanding the Rules, the Board shall give at least fifteen (15) days' notice to Owners, provide an open forum for Owners to be heard, and deliver a copy of the approved changes to the Owners.

5.2.11 Enforcement Rights. In addition to any other remedies allowed or provided in the Governing Documents for any violation of the Governing Documents, the Association may: (1) impose fines; (2) suspend Owners' rights to utilize the amenities within the Community; (3) collect rents directly from tenants if Owners fail to pay Assessments; (4) bring suit for legal or equitable relief for any lack of compliance with any provisions of this Declaration or Rules promulgated by the Board or DRC; (5) exercise self-help or take action to abate a violation in any situation which requires prompt action, or within a reasonable time in a non-emergency situation after notice has been given to the offending Owner; and (6) take any other action or seek any other remedy allowed by the Act or other applicable Utah law.

5.2.12 Discretion in Enforcement. Subject to the discretion afforded in this Article, the Board shall uniformly and consistently enforce and implement the Terms and Conditions in the Governing Documents.

5.2.12.1 The Board shall use its reasonable judgment to determine whether to exercise the Association's powers to impose sanctions or pursue legal action for a violation of the Governing Documents and may include in this analysis: (1) whether to compromise a claim made by or against the Board or the Association, and (2) whether to pursue a claim for an unpaid Assessment.

5.2.12.2 The Association may not be required to take enforcement action if the Board determines, after fair review and acting in good faith and without conflict of interest, that under the particular circumstances: (1) the Association's legal position does not justify

taking any further enforcement action; (2) the covenant, restriction, or rule in the Governing Documents is likely to be construed as inconsistent with current law; (3) a technical violation has or may have occurred and the violation is not material as to a reasonable Person or does not justify expending the Association's resources; or (4) it is not in the Association's best interests to pursue an enforcement action, based upon hardship, expense, or other reasonable criteria.

5.2.12.3 If the Association decides to forego enforcement, the Association is not prevented from later taking enforcement action. The Association shall not be arbitrary, capricious, or act against public policy in taking or not taking enforcement action.

5.2.13 Establishing Hearing Procedures. The Board shall have the authority to create a reasonable hearing process applicable in case the Association shall take adverse action related to any particular Owner or group of Owners, or in case a hearing process is required by law. The Board shall not be under any obligation to offer a hearing process, except as required by law or by the Governing Documents and in any such process shall have the authority to designate the procedure related to any such hearing and to make any and all final determinations of issues subject to the hearing process. The Board may establish the hearing process on an as-needed basis for particular matters as they arise or may set forth a process in the Rules applicable generally to such matters that it designates. Any such hearing process shall provide, at a minimum for: (1) at least one week notice of the hearing to the Owners, and (2) a reasonable time period for the Owner(s) to present their own testimony, the testimony of others, argument, authority, evidence, and other information the Owner deems relevant to the disputed issue. The Board may rely on any reasonable information and evidence in determining whether or not a violation of the Governing Documents has occurred, which may be obtained before, during, and after a hearing.

5.2.14 Bulk Services Agreements. The Association shall have the right to enter into agreements, as the Board deems appropriate, for the provision of cable, television, internet, telephone, or other similar services for all of the Lots or groups of Lots. Such services shall be assessed to the Owners pursuant to the provisions of this Declaration and in any Assessment, may be broken out as a separate line item on invoices, statements, or notices of Assessment.

5.2.15 Joint Use Agreements. The Association shall have the right to enter into Joint Use Agreements with neighboring property owners and/or homeowners associations. The terms of any Joint Use Agreement shall be approved by the Board. The funds received under a Joint Use Agreement shall be used to reduce the total Common Expenses of the Association, or deposited into a reserve account, as applicable.

5.2.16 Reserve Fund. The Association shall establish and fund a reserve fund for the long-term maintenance, repair and replacement of Common Areas and shall obtain and update a Reserve Analysis as required in this Declaration and the Act. The Board shall not be personally liable for failure to fund the reserve. The Declarant shall have no duty to obtain a Reserve Analysis or to maintain a reserve fund during the Control Period pursuant to Article 10.20 below and Utah Code § 57-8a-211(10).

5.2.17 Reinvestment Fee Covenant. The Board shall have the right (but shall not be required) to establish a Reinvestment Fee assessment in accordance with this Article and Utah Code § 57-1-46. If established, the following terms shall govern Reinvestment Fees:

5.2.17.1 Other than Declarant (or its affiliates or successors) or Builders (or their respective affiliates or successors) acquiring Lots directly from Declarant, upon the occurrence of any sale, transfer, or conveyance of any Lot as reflected in the office of the County Recorder, regardless of whether it is pursuant to the a sale of the Lot or not (as applicable, a "Transfer"), the party receiving title to the Lot (the "Transferee") shall pay to

the Association a Reinvestment Fee in an amount to be established by the Board in the Rules, provided that in no event shall the Reinvestment Fee exceed the maximum rate permitted by law.

5.2.17.2 The Association shall not levy or collect a Reinvestment Fee for any Transfer exempted by Utah Code § 57-1-46.

5.2.17.3 The Reinvestment Fee shall be due and payable by the Transferee to the Association at the time of the Transfer giving rise to the payment of such Reinvestment Fee and shall be treated as an Individual Assessment for collection purposes.

5.2.17.4 All transfers of Lots to (a) Declarant (or its affiliates or successors) or (b) by Declarant to builders. (or their respective affiliates or successors) shall be exempt from a Reinvestment Fee. The Declarant shall have the sole discretion to determine whether such Transferee is a related entity and if a Reinvestment Fee applies.

5.2.18 Litigation. The Board may instigate litigation to enforce the provisions of this Declaration or any other Common Law or statutory right which the Association is granted subject to the limitations set forth in Article 20.

5.2.19 Loans. The Association shall have the authority to obtain loans for the efficient operation of the Association and may use Common Area and other assets of the Association as collateral for financing. A majority vote of the Board shall be required prior to obtaining any loan.

5.2.20 Implied Rights. The Association may exercise any right or privilege given to it expressly by the Governing Documents, or reasonably implied from or reasonably necessary to effectuate any such right or privilege. Except as otherwise specifically provided in the Governing Documents, or by law, all rights and powers of the Association may be exercised by the Board without a vote of the Voting Members. The Board may institute, defend, settle, or intervene on behalf of the Association in mediation, binding or non-binding arbitration, litigation, or administrative proceedings, in matters pertaining to the Common Areas, enforcement of the Governing Documents, or any other civil claim or action. However, the Governing Documents shall not be construed as creating any independent legal duty to institute litigation on behalf of or in the name of the Association or its Members.

ARTICLE 6
MEMBERSHIPS AND VOTING

6.1 Membership in the Association. Membership in the Association shall at all times consist exclusively of Owners. Each Owner shall be a Member of the Association so long as such Owner has an ownership interest in a Lot within the Community and such membership shall automatically terminate when the Owner ceases to have an ownership interest in a Lot. Upon the transfer of an ownership interest in a Lot, the new Owner succeeding to such ownership interest shall likewise succeed to such membership in the Association. If titled ownership to a Lot is held by more than one Person, the membership appurtenant to that Lot shall be shared by all such Persons in the same proportional interest and by the same type of tenancy in which title to the Lot is held. Notwithstanding the foregoing,

6.2 Record of Ownership. Every Owner shall promptly file a copy of the conveyance document for her Lot with the secretary of the Association who shall maintain a current record of ownership of the Lots. Any cost incurred by the Association in obtaining the information about an Owner as specified herein which is not furnished by such Owner shall nevertheless be at the expense of such Owner and shall be reimbursed to the Association as an Individual

6.3 Votes in the Association.

6.3.1 Each Lot is entitled to a vote based on its Allocated Interest in the Association, subject to any limitations on voting set forth in this Declaration and Bylaws or limited by the Special Declarant Rights.

6.3.2 Until the expiration or termination of the Control Period (a) the Association shall be deemed to have two classes of Members, Class A and Class B; (b) the Declarant shall be the Class B Member, and all votes held by the Declarant shall be Class B votes; (c) all Owners other than Declarant shall be Class A Members, and all votes held by such Owners shall be Class A votes. Following expiration or termination of the Control Period the Association shall be deemed to have a single class of Members and votes. During the Control Period, all matters coming before the Association for vote shall be decided by the vote of the Declarant as the sole Class B Member. Following Control Period, all Class B Memberships and all Class B votes shall cease to exist, and any issue put to a vote at a duly called meeting of Members at which a quorum is present shall be decided by a simple majority of all votes represented in person or by valid proxy at such meeting.

6.4 Voting Procedures. A change in the ownership of a or Lot shall be effective for voting purposes from the time the deed or other instrument effecting such change is Recorded and the Association has been given written notice of such change and provided satisfactory evidence thereof. The vote for each Lot must be cast as a single vote, and fractional votes shall not be allowed. In the event that more than one Person owns a Lot, and such Owners are unable to agree among themselves as to how their vote or votes shall be cast, they shall lose their right to vote on the matter in question. If any Member casts a vote representing a certain Lot, it will thereafter be conclusively presumed for all purposes that the Member was acting with the authority and consent of all other Owners of the same Lot unless objection thereto is made at the time the vote is cast. In the event more than one Owner attempts to cast the vote or votes for a particular Lot, the vote or votes for that or Lot shall be deemed void and shall not be counted.

6.5 Transfer of Membership. The rights and obligations of any Member other than the Declarant shall not be assigned, transferred, pledged, conveyed or alienated in any way except upon transfer of ownership of an Owner's or Lot, and then only to the transferee of ownership of the or Lot. A transfer of ownership of a or Lot may be effected by deed, intestate succession, testamentary disposition, foreclosure or such other legal process as is now in effect or as may hereafter be established under or pursuant to applicable law. Any attempt to make a prohibited transfer shall be void. Each Purchaser of a or Lot shall notify the Association of its purchase of such or Lot.

6.6 Membership Rights. Each Member shall have the rights, duties and obligations set forth in this Declaration and such other rights, duties and obligations as are set forth in the Governing Documents, as the same may be amended from time to time.

ARTICLE 7
PROPERTY RIGHTS IN LOTS AND COMMON AREA

7.1 General Easements of Enjoyment.

7.1.1 Subject to all other terms of the Governing Documents, each Owner shall have the right and a nonexclusive license for use and enjoyment of the Common Area and facilities, subject to any other restrictions related to such use. Such right and nonexclusive license shall be appurtenant to and shall pass with title to each Lot and in no event shall such appurtenant rights be separated therefrom, Any Owner may extend his or her right of use and enjoyment to the members of his or her family, lessees, and social invitees, as applicable under the Governing Documents. All such rights shall be subject to any Rules established by the Board of Directors.

7.1.2 The Association (and Declarant during the Control Period) shall have nonexclusive easements with the right of access over and across each Lot, to make inspections, to prevent or mitigate damage to Common Area and to maintain, repair, replace, or effectuate the restoration of the Common Area and facilities that the Association is responsible for maintaining which are accessible from such Lot. Such rights shall be exercised only after the notice required in this Declaration. The Association shall have a nonexclusive right to grant permits, licenses, and easements upon, across, over, under, and through the Common Area and facilities for purposes necessary for the proper operation of the Community.

7.2 Easements for Utilities. There is hereby created an easement at specific locations approved by Declarant upon, across, over and under the Common Areas, and a blanket easement upon, across, over and under each Lot and Parcel, for reasonable ingress to, egress from, and the installation, replacement, repairing or maintenance of all utility and service lines and systems, including, but not limited to, gas, water, sewer, telephone, fiber optic cable, cable television and electricity or communication lines and systems, etc., as such utilities and systems are installed in connection with the initial development of the Common Area, Lot, or Parcel and the construction of the first Dwelling or other Improvement thereon. By virtue of this easement, it shall be expressly permissible for the providing utility company to install and maintain the necessary facilities and equipment on the property and affix and maintain wires, circuits and conduits on, in and under the roofs and exterior walls of buildings on the Lots and Parcels. The Association shall have the power to grant and convey, in the name of the Association or all of the Owners as their attorney-in-fact, to any Person, easements and rights-of-way in, on, over, or under the Common Area and facilities or Lots for the purpose of constructing, erecting, operating, or maintaining lines, cables, wires, wireless transmission or reception equipment, conduits, or other devices for electricity, cable television, power, telecommunications, Internet, telephone, public sewers, storm water drains and pipes, water systems, sprinkling systems, water heating and gas lines or pipes and any other public, quasi-public, or private improvements or facilities. Each Owner in accepting the deed to a Lot expressly consents to such easements and rights-of-way and authorizes and appoints the Association as attorney-in-fact for such Owner to execute any and all instruments conveying or creating such easements or rights-of-way. Such Owner and those claiming by, through, or under an Owner agree to execute promptly all such documents and instruments and to do such other things as may be necessary or convenient to effect the same at the request of the Association. However, no easement can be granted pursuant to this paragraph if it would permanently and materially interfere with the use, occupancy, or enjoyment by any Owner of such Owner's Lot.

7.3 Easements for Ingress and Egress. There are hereby created easements for ingress and egress for pedestrian traffic over, through and across sidewalks, walks, lanes, and pathways that from time to time may exist upon the Common Areas. There is also created an easement for ingress and egress for pedestrian and vehicular traffic over, through and across such driveways and parking areas as from time to time may be improved and intended for such purposes. Such easements shall run in favor of and be for the benefit of the Owners and Residents of the Lots and Parcels and their guests, families, tenants and invitees. Further, certain pathways or trails around and/or through the Property may be developed and maintained from time to time as part of walking or bicycling trail systems serving the public in addition to Owners and Residents; in such instances, members of the public shall also have the right to use such trails for the purposes for which they are developed and maintained, subject to reasonable, non-discriminatory rules and regulations as the Board may adopt from time to time and subject to applicable requirements and regulations of Harrisville City, Weber County and any other governmental body or agency having jurisdiction. There is also hereby created an easement upon, across and over the Common Areas and all private streets, private roadways, private driveways and private parking areas within the Property for vehicular and pedestrian ingress and egress for police, fire, medical and other emergency vehicles and personnel. The Board shall have the right to relocate and/or reconfigure any and all such easements from time to time as it sees fit without the consent of any Owners (but subject to any necessary approvals of Weber County or any other governmental body or agency having jurisdiction thereover including in

particular, but without limitation, the easements granted herein for police, fire, medical and other emergency vehicles and personnel).

7.4 Easement for Development. The Declarant hereby reserves an easement throughout the Property for the purpose of completing all Improvements contemplated by this Declaration, including but not limited to Improvements to the Additional Land, construction and relocation of roadways and pathways. Declarant shall be entitled to use all Common Areas within the Property, roadways within the Property and other facilities located in the Property to access the Additional Land in order to make Improvements thereto and to continue with the development of the Property.

7.5 Sales Program. Declarant shall have the following rights in relation to any sales or promotional program Declarant institutes related to the Property and have such easements over the Property and the Property as necessary to exercise such rights:

7.5.1 Declarant hereby reserves for itself and its licensees the right to maintain sales offices, management offices, signs advertising the Property, and models in any areas of the Property owned by the Declarant. Declarant may relocate sales offices, management offices and models to other locations within the Property at any time.

7.5.2 Declarant hereby reserves for itself and licensees the right to place promotional, advertising, and or directional signs, banners, or other materials any place within the Common Areas or on Lots or Parcels owned by Declarant, notwithstanding any restrictions contained in the Rules.

7.5.3 Declarant shall have the right to use all Common Areas to facilitate sales.

7.6 Delegation of Use. Each Member shall, in accordance with this Declaration and the Rules and the limitations therein contained, be deemed to have delegated his or her right of enjoyment in the Common Areas to the members of his or her family, their tenants, lessees, guests and invitees, as well as to their tenant's family, guests or invitees.

7.7 Private Road Easement. Declarant hereby reserves to itself and grants to the Association, Owners, and their invitees an easement over the private roads designated on the Plats ("Private Road Easement"), including all drainage structures, utilities, and other structures appurtenant to such roads ("Road Improvements"). Declarant shall construct and the Association shall permanently operate, maintain, repair, and replace the Road Improvements, and may in the future construct, install, operate, maintain, repair, or replace other Road Improvements within the Private Road Easement for any purpose consistent with this Declaration, and the costs thereof shall be a Common Expense. Road Improvements may include, without limitation or obligation, security gates, fences, signage, speed bumps or dips, and drainage structures. The property underlying the Private Road Easements shall be owned by the Declarant until conveyed by Declarant to the Association, and the Association is hereby obligated to accept such conveyance.

ARTICLE 8
USE LIMITATIONS AND CONDITIONS

The following covenants, conditions, restrictions and reservations of easements and rights shall apply to all Lots, the Owners and lessees thereof, and all Residents. The Rules may further address, limit, or regulate any of the items addressed in this Article 8.

8.1 Residential Occupancy. With the exception of Lots zoned or designated for commercial use, no trade or business activity shall be conducted on any Lot, including but not limited to garage sales, moving sales, rummage sales, or similar activity, except that an Owner or Resident may conduct business activities within the Dwelling so long as: (a) the existence or operation of the activity is not apparent or

detectable by sight, sound, or smell from outside the Dwelling; (b) the Owner of the Lot resides in the Dwelling in which the business activity is proposed for the entire time any business activity is conducted (c) the activity conforms to all zoning requirements for the Community; (d) the activity does not involve regular visitation of the Dwelling by clients, customers, suppliers, or other business invitees that are not Community residents, or door-to-door solicitation of residents of the Community; (e) The business activity will not result in the increase of the cost of any of the Association's insurance; (f) the activity is consistent with the residential character of the project and does not constitute a nuisance, or a hazardous or offensive use, or threaten the security or safety of other Residents of the project, as may be determined in the sole discretion of the Board; and (g) the Owner conducting the business responds promptly and completely to any Board request for information related to the business as the Board determines is appropriate to confirm compliance with this paragraph.

8.2 Architectural Control. No Lot Owner or Builder shall submit to the City of Harrisville an application for a building permit without first having received plan and design approval from the Design Review Committee, proof of which approval shall be submitted to the City with the relevant permit application. The Design Committee shall use its best and reasonable efforts to review and either approve or reject all requests for plan and design approval within fifteen (15) business days after submission for such review. Any rejections shall be accompanied by notes or comments from the Design Committee explaining in reasonable detail the reasons for the rejection and an invitation for resubmission.

Whether or not building permits are required, no Improvements (whether temporary or permanent), alterations, repairs, excavation, grading, landscaping or other work that in any way alters the exterior appearance of any property within the Community, or the Improvements located thereon, from its Natural or improved state existing as of the date this Declaration is Recorded shall be made or done without the prior approval of the Design Review Committee, as set forth in Article 9 hereof, except as otherwise expressly provided in this Declaration. No building, fence, wall, residence or other structure shall be commenced, erected, maintained, improved, altered or made without the prior written approval of the Design Review Committee. All subsequent additions to or changes or alterations in any building, fence, wall or other structure, including exterior color scheme, and all changes in the grade of Lots or Parcels, shall be subject to the prior written approval of the Design Review Committee. No changes or deviations in or from the plans and specifications once approved by the Design Review Committee shall be made without the prior written approval of the Design Review Committee.

8.3 Temporary Occupancy and Temporary Buildings. No structure or building of a temporary character, including a tent, trailer, or shack, shall be placed upon any Lot or used thereon for a Residence unless it is approved by the Board of Directors. The Declarant shall be exempted from this provision during the Control Period. Trailers, temporary construction offices, sheds, and other similar temporary structures may be permitted for construction purposes during the actual construction of structures or improvements if approved by the Declarant or the DRC, but shall be removed immediately after the completion of construction.

8.4 Maintenance of Lawns and Landscaping; Irrigation. The Association may adopt Rules regulating Owners' obligation for the landscape maintenance of their Lots including but not limited to standards for repairs, weed control, watering and general upkeep. The Association may charge fines to each Lot for a failure to maintain landscaping in accordance with Association standards. No material change may be made in the slope, pitch or drainage patterns of any Lot, or alter grading in a manner that increases water drainage onto adjacent Lots without obtaining the prior written approval of the DRC. Grading shall be maintained at all time so as to conduct irrigation and surface waters away from buildings and so as to protect foundations and footings from excess water. All sprinkler systems shall comply with state and local requirements, including those of the Utah Division of Drinking Water and by Pineview Water District or any other provider of secondary water service, the rules and regulations of that provider.

By its nature, the secondary water system may contain debris, material, moss, bromides or other aquatic life forms and each Lot owner shall be required to install, operate and maintain a filtration system on the owner's Lot. Each owner shall hold any irrigation company, Pineview Water District, the City and the Association harmless from and against any damage or other inconvenience of any kind arising from or related to operation of the secondary water system. Each Lot owner is further charged with the knowledge and understanding that secondary water is valuable and shall not be wasted by any owner or on any Lot and that Pineview Water or any other provider may enforce drought restrictions or rationing as appropriate. There is no public access to any storm water or irrigation pond, basin, line or service district facility of any kind; violators will be cited for trespassing.

8.5 Nuisances; Construction Activities. No dead trees or plants, rubbish or debris of any kind shall be placed or permitted to accumulate upon or adjacent to any Lot, and no odors or loud noises shall be permitted to arise or emit therefrom, so as to render any such property or any portion thereof, or activity thereon, unsanitary, unsightly, offensive or detrimental to any other property in the vicinity thereof or to the Residents of such other property. No other nuisance shall be permitted to exist or operate upon any Lot so as to be offensive or detrimental to any other property in the vicinity thereof or to its Residents. Without limiting the generality of any of the foregoing provisions, no exterior speakers, horns, whistles, firecrackers, bells or other sound devices, except security devices used exclusively for security purposes, shall be located, used or placed on any such property. Normal construction activities and parking in connection with the building of Improvements on a or Lot shall not be considered a nuisance or otherwise prohibited by this Declaration, but Lots and Parcels shall be kept in a neat and tidy condition during construction periods, trash and debris shall not be permitted to accumulate, and supplies of brick, block, lumber, and other building materials may be piled only in such areas as may be approved by the Design Review Committee. In addition, any construction equipment and building materials stored or kept on any Lot during construction of Improvements may be kept only in areas approved by the Design Review Committee, which may also require screening of the storage areas. The Design Review Committee in its sole discretion shall have the right to determine the existence of any such nuisance and may adopt or require the implementation of additional measures to mitigate the negative impact of construction. The Design Review Committee may require a construction mitigation plan to be approved by such committee and implemented during the course of construction.

8.6 Diseases and Insects. No Owner shall permit any thing or condition to exist upon any Lot that shall induce, breed or harbor infectious plant diseases or noxious insects.

8.7 Repair of Improvements. No Improvement on any Lot shall be permitted to fall into disrepair and each such Improvement shall at all times be kept in good condition and repair and adequately painted or otherwise finished. In the event any Improvement is damaged or destroyed, then, subject to the approvals required by Article 9.2 below and subject to the provisions of any Supplemental Declaration, such Improvement shall be immediately repaired, rebuilt or demolished. If any Improvement should be demolished, then the Owner shall at all times maintain the vacant or Lot in a clean sightly condition and shall clear and shall continue to clear the or Lot of any weeds, debris, garbage, trimmings or like items.

8.8 Antennas and Other Equipment Antennas, satellite dishes, solar equipment, wind turbines, and similar devices shall be subject to the rules, regulations and restrictions described in the Design Guide.

8.9 Trash Containers and Collection; Recycling. No garbage or trash shall be placed or kept on any Lot, except in covered containers of a type, size and style that are approved by the Design Review Committee. All rubbish, trash and garbage shall be removed from the Lots and Parcels and shall not be allowed to accumulate thereon. No outdoor incinerators shall be kept or maintained on any Lot. The Board may adopt additional Rules regulating the removal, accumulation, and placement of any rubbish,

debris, or unsightly material, conditions, or items. The Association may establish and administer a recycling program within the Community and all costs incurred by the Association in the management of the recycling program shall be a Common Expense. The Board may adopt Rules governing any recycling program, including requirements for the placement of recycling containers,

8.10 Machinery and Equipment. No machinery or equipment of any kind shall be placed, operated or maintained upon or adjacent to any Lot except (a) such machinery or equipment as is usual and customary in connection with the use, maintenance or construction (during the period of construction) of a building, appurtenant structures, or other Improvements; (b) that which Declarant or the Association may require for the operation and maintenance of the Community; or (c) that used or displayed in connection with any business permitted under a Supplemental Declaration.

8.11 Signs. The Association may regulate and restrict signs in the Community to the extent permitted by law in the Rules. Unless otherwise designated in the Rules, lawn signs are prohibited, except "For Sale" or "For Rent" signs that may be placed on an Owner's private Lot, or as directed by the Board. All other signs may only be erected or maintained on the Community, whether in a window or otherwise, with the prior written approval of the Board of Directors. Signs may not exceed a total of five square feet in size.

8.12 Utility Service. No lines, wires or other devices for the communication or transmission of electric current or power, including telephone, television and radio signals, data transmission, and cable information highways, shall be erected, placed or maintained anywhere in or upon any Lot unless the same shall be contained in conduits or cables installed and maintained underground or concealed in, under or on buildings or other structures as approved by the Declarant or the Design Review Committee, except for overhead power poles and lines to perimeter areas of the Community as approved by Declarant; and boxes on the ground for electrical or communication connections, junctions, transformers and other apparatus customarily used in connection with such underground lines, wires and other devices.

8.13 Motor Vehicles. No automobile, motorcycle, motorbike, ATV, OHV, or other motor vehicle shall be constructed, reconstructed or repaired upon any Lot, Parcel or street or other Common Area in. the Community, and no inoperable vehicle may be stored or parked on any such Lot, Parcel or street, so as to be visible from a neighboring or Lot, Common Area or street; provided, however, that the provisions of this Article 8.13 shall not apply to (a) emergency vehicle repairs; (b) temporary construction shelters or facilities maintained during, and used exclusively in connection with, the construction of any Improvement approved by the Design Review Committee; (c) the parking of such vehicles during normal business hours in areas designated for parking within the Community; (d) vehicles parked in garages on Lots or Parcels; and (e) non-Commercial vehicle repair within a garage which is closed except as necessary for ingress and egress. Vehicles may only be operated in such areas as designated for use on the Plat, by the Declarant, or in the Rules.

8.14 Parking. It is the intent of the Declarant to restrict on-street parking as much as possible and to generally limit on-street parking during the period between November 1 and April 1 to facilitate snow removal. Vehicles of all Owners and Residents, and of their employees, guests and invitees, are to be kept in garages and residential driveways of the Owner and other designated parking areas; provided, however, this Article 8.14 shall not be construed to permit the parking in the above-described areas of any vehicle whose parking on the Community is otherwise prohibited or restricted by City ordinance or the parking of any inoperable vehicle. Recreational vehicles and boats shall be parked in covered garages except for limited periods in residential driveways or other designated parking areas as determined by the Board and promulgated as part of the Rules.

8.15 Roofs. No apparatus, structure or object, including any solar equipment (addressed below), shall be placed on the roof of a Dwelling without the prior written consent of the Design Review

Committee. No air conditioning units or evaporative coolers extending from windows or protruding from roofs are permitted.

8.16 Solar Energy Equipment. Solar energy systems and attendant equipment are prohibited from being constructed or installed in the Community. Notwithstanding the forgoing, if the Board elects to allow solar energy systems in the Community, the Board may adopt Rules and regulations for the installation of solar panels or other energy conservation equipment in the Design Guidelines. Any such rules must require that the installation be an integral and harmonious part of the architectural design of the Lot, Dwelling, or adjacent buildings. Solar panels or other equipment shall not be installed so as to be visible from the streets in the Community without prior approval from the DRC as a variance. Owners shall be responsible for the costs of the installation, operation, and maintenance of each solar energy system. If an approved solar energy system (installation, operation, maintenance, or otherwise) causes costs to the Association, then the Board may allocate these costs to the Owner who requested or benefit from the installation as the Board in its sole discretion determines. The costs arising under this Article shall be assessed and collected as an Individual Assessment. The DRC or the Board shall have the sole discretion to determine compliance with the Design Guidelines and this Article.

8.17 Fencing and Walls. All walls and fencing must be constructed and maintained in accordance with the Design Guide.

8.18 Drainage. No Owner or Resident shall interfere with or obstruct the drainage pattern over his or her or Lot from or to any other or Lot as that pattern may be established by Declarant or a Neighborhood Developer.

8.19 Watering. Any irrigation or other water system shall comply with all Municipal Authority restrictions as well as the Design Guide and Rules. The Association is expressly authorized to adopt temporary or permanent policies limiting the amount or time of watering, which policy may be separate from or supplemental to the Rules. All irrigation or other water systems shall comply with state and local requirements, including those of the Utah Division of Drinking Water.

8.20 Garage Openings. All garages shall be fully enclosed. No carports shall be permitted unless otherwise permitted in writing by the Design Review Committee. No garage door shall be open except as reasonably necessary for access to and from the garage.

8.21 Right of Entry. During reasonable hours and upon reasonable notice to the Owner or other Resident or occupant of a or Lot, any member of the Design Review Committee, any member of the Board or any authorized representative of either of them, shall have the right to enter upon and inspect any Lot, and the Improvements thereon, except for the interior portions of any completed Dwelling, for the purpose of ascertaining whether or not the provisions of this Declaration have been or are being complied with, and such persons shall not be deemed guilty of trespass by reason of such entry.

8.22 Health, Safety and Welfare. In the event additional uses, activities and facilities are deemed by the Design Review Committee to be a nuisance or to adversely affect the health, safety or welfare of Owners and Residents, the Design Review Committee may make rules restricting or regulating their presence within the Community as part of the Design Guide.

8.23 Model Homes. The provisions of this Declaration or Supplemental Declarations that, in certain instances, prohibit non-residential use of Lots and Parcels and regulate parking of vehicles shall not prohibit the construction and maintenance of model homes and units by persons engaged in the construction or sale of Dwellings on the Community and parking incidental to the visiting of such model homes and units, so long as the location of such model homes and the opening and closing hours are approved by the Declarant or the Design Review Committee, and the construction, operation and maintenance of such model homes otherwise complies with all of the provisions of this Declaration. Any

homes constructed as model homes or units shall cease to be used as model homes or units at any time the Owner thereof is not actively engaged in the construction and sale of Dwellings at the Community, and no Dwelling shall be used as a model home for the sale of homes not located at the Community.

8.24 Incidental Uses. The Declarant or the Design Review Committee may approve uses of property that are incidental to the full enjoyment by the Owners of the property Such approval may be subject to such regulations, limitations and restrictions, including termination of the use, as the Declarant or Design Review Committee may wish to impose, in its sole discretion, for the benefit of the Community as a whole. By way of example and not of limitation, the uses that the Board may permit are private roadways and streets within a Condominium Community, a business office for the Association on Association Land; pickle ball or tennis courts, swimming pools and other recreational facilities intended for usage by the Residents or Owners of more than a single or Lot within any Residential Development; and a sales, information and marketing center operated by the Declarant, Neighborhood Developer, or other developer on Association Land.

8.25 Leases.

8.25.1 No Transient Lodging Uses. The Dwellings are to be used for residential housing purposes only, and shall not be rented, in whole or in part, for transient lodging purposes such as Airbnb, boarding house, bed and breakfast, or other uses for providing accommodations to travelers or renters. No lease of any Dwelling on a Lot shall be for a period of less than 30 days. No Dwelling on a Lot shall be subjected to time interval ownership.

8.25.2 Long Term Leases Permitted Subject to Section 8.25.1, any Lease between an Owner and a lessee respecting a Lot or Dwelling shall be subject in all respects to the provisions of the Governing Documents, and any failure by the lessee to comply with the terms of such Governing Documents shall be a default under the Lease. Specifically, all Leases shall require, without limitation, that the tenant acknowledge receipt of a copy of the Governing Documents. The Lease shall also obligate the tenant to comply with the foregoing and shall provide that in the event of noncompliance, the Board, in addition to any other remedies available to it, may evict the tenant on behalf of the Owner and specifically assess all costs associated therewith against the Owner and the Owner's property. The Board may adopt additional Rules to regulate the leasing of Dwellings which may include but are not limited to the following: requiring a copy of each lease to be provided to the Board; reporting of name and contact information for all adult tenants; reporting of vehicle information of the tenants; and any other information deemed necessary by the Board. The leasing restrictions set forth in this Article shall not apply to the Declarant or a Declarant affiliated entity.

8.26 Tree Removal. Unless approved in writing by the Design Review Committee, no trees existing within the Community at the beginning of construction of Improvement shall be removed, except for (a) diseased or dead trees; and (b) trees that must be removed to promote the growth of other trees or for fire prevention and other safety reasons.

8.27 Animals. No animal, livestock, poultry, fowl or vicious dogs of any kind, other than a reasonable number of house pets as set forth in the Rules, shall be maintained on or in any Lot and then only if they are kept or raised thereon solely as domestic pets and not for commercial purposes. No house pets shall be permitted to make an unreasonable amount of noise or create a nuisance. Notwithstanding the foregoing, no pets may be kept on or in any Lot that, in the opinion of the Declarant or Board, result in an annoyance to other Owners or Residents in the vicinity. All pets shall be leashed when not on property owned by the pet's owner or on which the pet's owner is a Resident or guest, and persons walking any pet shall promptly and properly remove and dispose of the pet's waste. Notwithstanding anything herein to the contrary, if Additional Land is annexed to the Community, the Declarant and/or Neighborhood Developer shall have the unilateral right to create more liberal or restrictive rules regarding

pets and other animals permitted on the Lots and Parcels of such Additional Land, including, without limitation, the right to seasonally keep and use horses, subject to applicable zoning restrictions.

8.28 Snow Removal. The Association shall be responsible for removal of snow from all private roads within the Property, and the expense thereof shall be a Common Expense. Each Owner shall be responsible for removal of snow from the driveway and sidewalks on such Owner's Lot. No snow may be pushed or blown onto another Owner's Lot or onto any Common Area, including roadways.

8.29 Exterior Lighting. The Association may adopt rules setting forth exterior lighting standards and regulation throughout the Community. If such rules are adopted, then exterior lighting fixtures, walkway, and landscaping lights shall be allowed only to the extent approved by the Board or the DRC.

8.30 Hazardous Substances. Owners shall comply with applicable environmental laws, and shall not cause or permit the presence, use, disposal, storage, or release of any hazardous substances, on or within the Community, that are not properly controlled, safeguarded, and disposed of. No one shall permit anything to be done or kept on a Lot or Dwelling which will result in the cancellation of insurance or which would be in violation of any public law, ordinance, or regulation. Each Owner shall indemnify, defend, and hold the Association and each and every other Owner harmless from and against any and all claims and proceedings (whether brought by private party or governmental agency) for bodily injury, property damage, abatement or remediation, environmental damage or impairment, or any other injury or damage resulting from or relating to any hazardous substances located under or upon or migrating into, under, from, or through the Community, which the Association or the other Owners may incur due to the actions or omissions of an indemnifying Owner.

8.31 Violations of Law. Any activity that violates local, state, or federal laws or regulations is prohibited; however, the Board shall have no obligation to take enforcement action in the event of a violation.

8.32 Declarant's Exemption. Nothing contained in this Declaration shall be construed to prevent the erection or maintenance by Declarant or its duly authorized agents, of structures, Improvements or signs necessary or convenient to the development or sale of property within the Community if those structures, Improvements or signs have been approved by the Design Review Committee.

8.33 Variances. The Declarant or the Association may, at their sole option and in extenuating circumstances, grant variances from the restrictions set forth in this Article if the Board determines in its discretion (a) either: (i) that the restriction would create an unreasonable hardship or burden on an Owner or Occupant, or (ii) that a change of circumstances since the recordation of this Declaration has rendered such restriction obsolete; and (b) that the activity permitted under the variance will not have any substantial adverse effect on the Owners and Residents of the Community and is consistent with the high quality of life intended for Owners and Residents of the Community.

ARTICLE 9
ARCHITECTURAL STANDARDS

9.1 General. All, landscaping, structures, Dwellings, improvements, and other items placed on a Lot are subject to the standards for design, landscaping, and aesthetics adopted pursuant to this Article and the approval procedures set forth in this Article.

9.2 Architectural Review Required. Without the prior approval of the Association (or the Declarant during the Control Period), an Owner may not (1) install or build any new structure, fence, landscaping, or Dwelling; (2) (except as permitted under Article 9.5.5) make alterations, upgrades, repairs, or modifications to any part of the exterior of any structure or Dwelling; (3) install or alter any new or existing exterior feature such as a driveway, walkway, fence, landscaping or anything else that alters the exterior appearance of the Lot; and (4) alter or modify the finished grade to a Lot, or alter the

ground level, slope, pitch or drainage patterns of any Lots as fixed by the original finish grading. This provision is intended to be read as broadly as possible to require approval before any exterior work is performed on a Lot, including changes to landscaping.

Notwithstanding anything to the contrary herein, until the expiration of the Control Period, the Declarant shall have sole authority and responsibility to approve the plans for the construction of all Dwellings, improvements, and landscaping on each Lot.

9.3 Design Guidelines. The Board may adopt Design Guidelines for the purpose of maintaining a consistent character and quality of appearance for the improvements within the Community.

9.3.1 The Declarant may prepare initial Design Guidelines which may contain general provisions applicable to the entire Community as well as specific provisions that vary among uses, housing types, or locations within the Community.

9.3.2 The Declarant shall have sole and full authority to amend the Design Guidelines during the Control Period. The Declarant's right to amend the Design Guidelines shall continue even if it delegates reviewing authority to the Association or another entity. Upon termination or delegation of the Declarant's right to amend, the Board shall have the right to amend the Design Guidelines.

9.3.3 The Design Guidelines may designate the design, style, model, and manufacturer of any materials to be used for an exterior improvement or alteration that is acceptable to the Board and DRC. The Design Guidelines may also designate landscaping requirements and may require complete landscaping of Lots prior to occupancy. Such designations shall be for the purpose of achieving uniformity of appearance and preservation of property values.

9.3.4 Amendments to the Design Guidelines shall apply prospectively only. They shall not require modifications to or removal of any structures previously approved once the approved construction or modification has begun. However, any new work on such structures must comply with the Design Guidelines as amended.

9.4 Design Review Committee. The Design Review Committee ("DRC") shall serve as an architectural review board and shall regulate the external design, appearance, and location of any structure and landscaping on any Lot so as to enforce the architectural provisions of the Declaration or Design Guidelines as may be adopted by the Board or Declarant.

9.4.1 During the Control Period and unless the right is ceded to the Board, the Declarant shall act as the DRC for the Community and may delegate its authority to act as the DRC to one or more individuals or entities.

9.4.2 A Design Review Committee may be appointed by the Board. Such committee shall consist of an uneven number of persons of at least three (3) members but may include more members at the discretion of the Board. The Board need not appoint a Design Review Committee. If no such committee is appointed, the Board shall have all powers of the DRC and may act in all ways and have all powers otherwise given to the DRC.

9.4.3 The DRC need not be composed of Owners. The DRC may, but need not, include architects, engineers, or similar professionals. Board members may serve on the DRC. The DRC shall be a Sub-Committee as defined in the Bylaws and shall act in accordance with the requirements of Sub-Committees.

9.4.4 The DRC shall have the Board's right of entry to verify compliance with this Article. The DRC shall have no duty or obligation to make inspections; however, nothing herein shall prevent the DRC from making inspection prior to, during, or after construction, The DRC

may inspect any work performed in the Community to determine its compliance with the Design Guidelines and the Governing Documents.

9.4.5 Members of the DRC shall serve for a term of two (2) years and may serve for consecutive terms of service as appointed by the Board. Any vacancy on the Committee may be filled by the Board to serve the remainder of the term of the originally appointed member(s). The Committee may act even though a vacancy has not been filled. Any member of the DRC may be removed at any time by the Board with or without cause.

9.4.6 The Association may compensate DRC members in such manner and amount, if any, as the Board may determine appropriate.

9.5 Design Review Approval Procedures. Unless the Design Guidelines provide otherwise, no structure, improvement, or exterior remodel of any kind whatsoever shall be erected, placed, moved onto, or commenced without the prior written approval of the Declarant or the DRC.

9.5.1 The Declarant or the Board may adopt Rules relating to the submission of plans and specifications in the Design Guidelines. Unless and until the Board adopts such Rules, Owners must submit such plans and specifications as the DRC may reasonably require, but shall in all cases include the following:

+ A complete set of plans and specifications;

+ A site plan showing the location of all existing and proposed structures on the Lot;

+ Exterior elevations for the proposed structures;

+ Specifications of materials, color scheme, and other details affecting the exterior appearance of the proposed structures; and

+ Description of the plans and provisions for landscaping, grading and water drainage.

9.5.2 In reviewing each application, the DRC may consider any factors it deems relevant, including, without limitation, harmony of the proposed external design with surrounding structures and environment; the building bulk or mass of any buildings or structures within the Community; building location with respect to topography, existing trees; finished grade elevations; and harmony of landscaping with the natural setting and surroundings. DRC decisions may be based on purely aesthetic considerations. Each Owner acknowledges that such determinations are purely subjective and that opinions may vary as to the desirability and/or attractiveness of particular improvements.

9.5.3 The DRC shall have the sole discretion to make final, conclusive, and binding determinations on matters of aesthetic judgment, and such determinations shall not be subject to judicial review so long as they are made in good faith and in accordance with required procedures.

9.5.4 No approval is required for interior modifications that do not affect the exterior of Dwellings or structures, although the Board may still adopt Rules relating to the use of Common Area or roadways for staging and other construction needs.

9.5.5 An Owner may complete any maintenance to the exterior of a Dwelling or other approved structure on a Lot, to the extent that such maintenance obligation is the responsibility of the Owner, provided that such maintenance will not change the appearance of the already-built and approved Dwelling or structure.

9.5.6 As part of any approval, the DRC may require that construction commence within a specified time period. If construction does not commence within the required period, the approval shall expire, and the Owner must reapply for approval before commencing any activities. Once construction is commenced, it shall be diligently pursued to completion.

9.5.7 If the Declarant or DRC shall fail to act upon any written request submitted to it within thirty (30) days after a complete submission of documents in a form acceptable to the DRC, such request shall be deemed to have been denied.

9.6 Appeals. An applicant may appeal any DRC disapproval of its application to the Board. To request an appeal, the applicant must submit to the Association's Secretary, no later than fifteen days after the delivery of the notification of disapproval, a copy of the original application, the notification of disapproval, and a letter requesting review of the decision. The appeal request shall also contain a response to any specific concerns or reasons for disapproval listed in the DRC's notification of disapproval. The Board may (i) affirm the DRC's decision, (ii) affirm a portion and overturn a portion of the DRC's decision, or (iii) overturn the DRC's entire decision, The Board shall notify the applicant and the DRC in writing of its decision no later than thirty days after its receipt of the request for appeal with all required information. The Board's decision shall include a description of its reasons for overturning the DRC's decision. During the appeal process the Owner shall not commence any work requiring approval hereunder.

9.7 Noncompliance. If at any time the Declarant, DRC, or Board find that any work was not done in substantial compliance with plans approved by the DRC or was undertaken without first obtaining approval from the DRC, written notice shall be sent by the DRC to such Owner specifying the noncompliance and requiring the Owner to cure such noncompliance within thirty (30) days or any extension thereof granted. If the Owner fails to cure the noncompliance or to enter into an agreement to cure on a basis satisfactory to the DRC within said thirty (30) day period or any extension thereof as may be granted, the Board may, at its option, cause the non-complying improvement to be removed or the noncompliance to be cured. Upon demand, the Owner shall reimburse the Association for all costs and expenses incurred by the DRC and/or the Board in taking corrective action, plus all costs incurred in collecting amounts due, including reasonable attorney fees and costs. The Owner shall be personally liable for all such costs and expenses, and the Association also shall have a lien against the noncomplying Lot for the amount of all such costs and expenses. Any amounts not paid, without waiver of any other right or remedy, may be collected as an Individual Assessment.

9.8 No Waiver of Right for Future Approvals. The approval of applications or plans shall not constitute a waiver of the right to withhold approval as to any similar applications, plans, or other matters subsequently or additionally submitted for approval. Any failure of the DRC or Board to enforce the requirements of this Article or the Design Guidelines shall not preclude any future actions to enforce such requirements.

9.9 Expenses of Design Review Committee. The DRC may charge reasonable fees to Owners for the processing of any request, plans, or specifications including consultation with a professional. The Association shall pay any ordinary or reasonable expense of the architectural review.

9.10 Variances. The DRC may authorize variances from compliance with any of the Design Guidelines and any procedures when it determines that circumstances such as topography, natural obstruction, hardship, or aesthetic or environmental considerations justify such a variance, however, the DRC shall under no circumstances be obligated to grant variances. No variance shall (a) be effective unless in writing; (b) be contrary to this Declaration; or (c) prevent the DRC from denying a variance in other similar circumstances. A variance requires the Declarants written consent during the Control Period and thereafter, requires the Board's written consent. If a variance is granted, no violation of the Governing Documents shall be deemed to have occurred with respect to the matter for which the variance

was granted. The granting of a variance shall not operate to waive any Restrictions of the Governing Documents, other than those specifically identified in the variance, nor shall it affect an Owner's obligation to comply with all governmental laws and regulations.

9.11 No Liability. Neither the Declarant, the DRC, the Board, the Association, nor any Members shall be liable for damages to any person submitting any plans for approval, or to any Owner within the Community, by reason of any action, failure to act, approval, disapproval, or failure to approve or disapprove with regard to such plans. The DRC shall have no liability or responsibility for any representations made to any Owner or prospective owner by any third parties. The DRC shall not be responsible for: (a) determining that any construction or construction documents conform to applicable building codes, zoning, or other land use regulations, (b) the accuracy or content of any construction documents or specifications prepared by any architect, engineer, or any other person, (c) construction means, methods, techniques, sequences, or procedures, safety precautions, or subsequent loss, damage, or failures due to soil or any other natural or man-made conditions that may exist, or (d) any failure to carry out any construction in accordance with plans or specifications.

9.12 Declarant's Exemption. Nothing contained in this Declaration shall be construed to prevent the erection or maintenance by Declarant, or its duly authorized agents, of temporary structures, trailers, improvements or signs necessary or convenient to the development, marketing, or sale of property within the Community. Furthermore, the provisions of this Declaration which prohibit or restrict non-residential use of Lots, regulate parking of vehicles, and restrict signage, banners, and the like, shall not prohibit the construction and maintenance of model homes by Declarant and/or other persons engaged in the construction of Dwellings within the Community. The Declarant may use vacant Lots and other areas to be used for parking in connection with the showing of model homes or for vehicles necessary for development and construction activities.

ARTICLE 10
BUDGET AND ASSESSMENTS

10.1 Purpose of Assessments. Money collected by the Association shall be used for the purposes of promoting the health, safety, and welfare of the Owners; the management, maintenance, care, preservation, operation, and protection of the Community; enhancing the quality of life of the Owners in the Community; enhancing and preserving the value of the Community; and in the furtherance of carrying out or satisfying any other duty or power of the Association.

10.2 Budget. The Board shall prepare and adopt an annual budget not later than thirty (30) days prior to the beginning of each fiscal year. The Board may revise that budget from time to time as the Board deems appropriate. The budget shall be broken down into reasonably detailed expense categories, anticipated receipts (if any) and any deficit or surplus from the prior operating period. It shall include a line item that identifies the amount to be placed into the reserve fund and may include contingencies and estimates as the Board deems appropriate. The budget shall serve as the supporting document for the Annual Assessment for the upcoming fiscal year and as the major guideline under which the Association shall be operated during such annual period. The budget may be disapproved by a vote of Members holding at least fifty-one percent (51%) of the voting interests taken at a special meeting of the Association held within forty-five (45) days of the date the Board distributed such budget to the Owners; provided, however, that during the Period of Declarant Control, the Members may not disapprove the budget. The budget shall track and estimate the expenses associated with each designated Service Area (if any) separately from the Common Expenses in order to allocate these expenses as set forth in Article 10.8. "Service Area Expenses" shall mean and include those actual and estimated expenses incurred or to be incurred by the Association for the benefit of the Lots within each designated Service Area which may include costs of insurance, snow removal, landscaping, construction, insurance, maintenance, and any repair and replacement of the Common Area facilities appurtenant to the Service Area, structures and

adjacent areas. If the Service Area responsibilities require the maintenance or repair of long-term Common Area facilities, then the Service Area Expenses shall include contributions to a reserve fund for the repair and replacement of such facilities, Service Area reserves shall be accounted for and kept separate from the Association's primary reserve fund. Separate accounting and financial reporting shall be maintained for each Service Area.

10.2 Payment of Assessments. Unless otherwise established by the Board communicated to each Owner, and subject at all times to the exemptions under Article 10.11 below, each Owner shall pay to the Association the Owner's Regular Assessment and any applicable Service Area Assessment in monthly installments.

10.3 Adjustments to Assessments. In the event the Board determines that the estimate of total charges for the current year is, or will become, inadequate to meet Common Expenses or Service Area Expenses for any reason, it may then revise the budget and each (assessable) Owner's share of the new budget total based on the (assessable) Owner's Allocated Interest. Subject at all times to the exemptions under Article 10.11 below, upon notice of the adjustment, and unless modified by the Board, each Owner shall thereafter pay to the Association the Owner's adjusted Assessment.

10.5 Personal Obligation for Assessment. Subject at all times to the exemptions under Article 10.11 below, after the construction of a Dwelling on a Lot, and the closing of a sale to a purchaser of a completed Dwelling on a Lot, each Owner of a Lot with a completed, closed Dwelling, by acceptance of a deed or other instrument creating in such Owner the interest required to be an Owner, whether or not it shall be so expressed in any such deed or other instrument and regardless of any lien rights or lack thereof, hereby personally covenants and agrees with each other Owner and with the Association to pay to the Association any Assessments as provided for in the Governing Documents, including any Assessments assessed and unpaid prior to the date the Owner became an Owner. Each such Assessment, together with such interest, collection charges, costs, and attorney fees, shall also be the personal obligation of the Owner of such Lot at the time the Assessment becomes due.

10.6 Capital Improvements. Expenses for capital improvements may be included in the budget, paid for through Special Assessments, or paid for in any other manner as determined by the Board of Directors.

10.7 Regular Assessment. The Regular Assessment shall be paid by the owners of all Lots within the Community that are subject to assessment. The Regular Assessment shall be computed by subtracting the Service Area Expenses from the total Common Expenses of the Association and then allocating this figure to all Lots subject to assessment based on the Allocated Interest of each such (assessable) Lot.

10.8 Service Area Assessment. Any Service Area Assessment shall be paid by the owners of all Lots within a designated Service Area that are subject to assessment, in addition to the Regular Assessment. There is no requirement that Service Area Assessments be uniform between or among separate Service Areas. The amount of the Service Area Assessment shall be determined by allocating the budgeted Service Area Expenses to all Lots within the Service Area that are subject to assessment based on the Allocated Interest of each such (assessable) Lot. At no time shall a Service Area Assessment be charged or assessed to Lots outside of the designated Service Area. The amounts the Association collects as Service Area Assessments shall be held in trust for and expended solely for the benefit of the Service Area from which they were collected.

10.9 Special Assessments. The Board may levy a Special Assessment payable over such a period as the Board may determine for the purpose of defraying, in whole or in part any expense or expenses not reasonably capable of being fully paid with funds generated by Regular Assessments; the cost of any construction, reconstruction, or unexpected repair or replacement of the Common Areas; or

for any other capital expense incurred or to be incurred as provided in this Declaration. Notice in writing of the amount of any Special Assessments and the time for their payment shall be given as soon as is reasonably possible to the Owners. Payment shall be due on the dates and in the manner determined by the Board and provided in the notice. Notwithstanding the foregoing, Declarant may levy Special Assessments in any amount deemed necessary during the Control Period without Owner approval. Special Assessments shall be allocated to the owners of Lots that are subject to assessment based on each (assessable) Lot's Allocated Interest.

10.10 Individual Assessments. Subject at all times to the exemptions under Article 10.11 below, Individual Assessments may be levied by the Association against a particular Lot and its Owner for: (a) Costs of providing services to the Lot upon request of the Owner; (b) Costs incurred in bringing an Owner or the Owner's Lot or Dwelling into compliance with the provisions of the Governing Documents; (c) Fines, late fees, collection charges, interest, and all other costs incurred in enforcing the Governing Documents against an Owner or his Occupants; (d) Any other charge designated as pertaining to an individual Lot in the Governing Documents; and (e) Attorney fees, costs, and other expenses relating to any of the above, regardless of whether a lawsuit is filed. If a special benefit arises from any improvement which is part of the general maintenance obligations of the Association, it shall not give rise to an Individual Assessment against the Lot(s) benefited (and subject to assessment), unless such work was necessitated by the Owner's or his/her Occupants' negligence.

10.11 Declarant's Exemption from Assessments. No Lot(s) owned by the Declarant (or its affiliates or successors) or Builders (or their respective affiliates or successors) acquiring Lots directly from Declarant, shall pay any Assessments until such time as the Declarant or such entities elect to pay Assessments, and only for so long as the Declarant or such entities elect to pay Assessments. The Declarant shall have the sole discretion to determine (a) whether a Lot is owned by it (or one of its affiliates or successors) or by a qualifying Builder and (b) whether such Lot is subject to assessment.

10.12 Rules Regarding Billing and Collection Procedures. The Board shall have the right and responsibility to adopt Rules setting forth procedures applicable to Assessments provided for in this Declaration and for the billing and collection of all Assessments, provided that such procedures are not inconsistent with the provisions herein. Such procedures and policies may include, but are not limited to, the date when Assessment payments are due and late, establishing late fees and collection charges, and establishing interest (per annum or compounded) that may be charged on unpaid balances. The failure of the Association to send a statement to an Owner or an error in any such statement (other than a Statement described in Article 10.13 below) shall not relieve any Owner of liability for any Assessment or charge under the Governing Documents.

10.13 Statement of Unpaid Assessment. An Owner may request a statement from the Association showing an accounting of all unpaid assessments and charges to the Owner's account. For any valid request, and upon payment of a fee of not more than twenty-five dollars ($25.00), the Association shall provide a written statement of account within a reasonable time. A written statement from the Association is conclusive in favor of a Person who relies on the written statement in good faith.

10.14 Account Payoff Fee. The Association may charge a reasonable fee for providing Association payoff information needed in connection with an Owner's financing, refinancing, or closing of the sale of a Lot as provided for in Utah Code § 57-8a-106. The amount of such fee shall be fifty dollars ($50.00) or in such other amount as may be established from time to time in the Rules, not exceed the maximum amount (if any) set forth in the Act. Additional paperwork required in a private sale between an Owner and purchaser may be obtained from the Association but may involve additional fees.

10.15 Acceptance of Materials or Services. In the event the Association undertakes to provide materials or services that are not otherwise required in the maintenance of the Community, which benefit individual Lots, and which can be accepted or not by individual Owners, such Owners, in accepting such

materials or services, agree that the costs thereof may be a special Assessment pertaining to that Lot, at the discretion of the Board of Directors.

10.16 Application of Excess Assessments. In the event the amount budgeted to meet Common Expenses for a particular fiscal year proves to be excessive in light of the actual Common Expenses, the Board of Directors in its discretion may retain the excess in the Association's operating account as working capital, apply the excess to reserves, credit the excess against future Assessments, refund the excess to the Owners in proportion to the Allocated Interests of each Lot, or take other action with the funds permitted under this Declaration, as the Board of Directors deems appropriate. The decision of the Board of Directors shall be binding and conclusive. In addition, the Association shall not be obligated to reduce Assessments in succeeding years if an excess exists for a prior year.

10.17 No Offsets. All Assessments shall be payable at the time and in the amount specified by the Association, and no offsets against such amounts by Owners shall be permitted for any reason, including, without limitation, a claim that the Board is not properly exercising its duties and power, a claim in the nature of offset or that the Association owes the Owner money, or that the Association is not complying with its obligations as provided for in the Governing Documents.

10.18 How Payments Are Applied. Unless otherwise provided for in the Rules, all payments for Assessments shall be applied to the earliest (or oldest) charges first. Owners shall have no right to direct the application of their payments on Assessments or to require application of payments in any specific order, to specific charges, or in specific amounts.

10.19 Loans. Upon approval of Owners holding more than thirty percent (30%) of the Allocated Interests, the Association may borrow money and may provide such security as necessary for the loan, including but not limited to securitizing, pledging, or assigning the Association's right to assess Owners. Notwithstanding anything to the contrary, no Lot shall be security for any loan to the Association without that Owners' consent.

10.20 Reserves.

10.20.1 Reserve Fund Line Item. The Association's budget shall include a reserve fund line item as determined by the Board, based on the reserve analysis and the amount the Board determines is prudent under the circumstances. Within forty-five (45) days after the day on which the Association adopts its budget, the Owners may veto the reserve fund line item by a fifty one percent (51%) vote at a special meeting called by the Owners for the purpose of voting whether to veto the reserve fund line item. If the Owners veto a reserve fund line item and a reserve fund line item exists in a previously approved budget of the Association that was not vetoed, the Association shall fluid the reserve account in accordance with that prior reserve fund line item. The Association shall not be obligated to spend in any year all the sums received by it in such year (whether by way of Assessments, fees or otherwise), and may carry forward as surplus or commit to reserves any balances remaining. The Association shall not be obligated to reduce the amount of Annual Assessment in the succeeding year if a surplus exists from a prior year and the Association may carry forward from year to year such surplus as the Board in its discretion may determine to be desirable for the greater financial security of the Association and the accomplishment of its purposes.

10.20.2 Use of Reserve Funds. The Board shall not expend budgeted funds designated as reserves for any purpose other than the repair, restoration, replacement or maintenance of major components of the Common Areas and for which the reserve fund was established or for litigation involving such matters. Furthermore, the Board shall not use money in a reserve fund

for daily maintenance expenses unless a majority of the Members vote to approve the use of the reserve fund money for that purpose. Upon the approval of a majority of the Members, the Board may authorize the temporary transfer of money from the reserve account to the Association's operating account from time to time to meet short-term cash flow requirements and pay other expenses. Any such funds so transferred shall constitute a debt of the Association and shall be restored and returned to the reserve account within three (3) years of the date of the initial transfer; provided, however, the Board may, upon making a documented finding that a delay in the restoration of such funds to the reserve account would be in the best interests of the Community and of the Association, delay such restoration until the time it reasonably determines to be necessary. The Board shall exercise prudent fiscal management in the timing of restoring any transferred funds to the reserve account and shall, if necessary, levy a Special Assessment to recover the full amount of the expended funds within the time limit specified above.

10.20.3 Reserve Analysis. At least once every six (6) years the Board shall cause a reserve analysis to be conducted of the reserve account of the Association and its adequacy to satisfy anticipated future expenditure requirements. The Board shall, thereafter, review the reserve account study at least every three (3) years and shall consider and implement necessary adjustments to reserve account requirements and funding as a result of that review. Any reserve analysis shall include, at a minimum:

10.20.3.1 Identification of the major components that the Association is obligated to repair, replace, restore or maintain that, as of the date of the study, have a useful life of no fewer than three (3) years but less than thirty (30) years that will reasonably require reserve funds.

10.20.3.2 Identification of the probable remaining useful life of the components identified in subparagraph 10.20.3.1 above, as of the date of the study.

10.20.3.3 An estimate of the cost of repair, replacement, and restoration of each major component identified.

10.20.3.4 An estimate of the total annual contribution to reserve funds necessary to meet the cost to repair, replace, or restore each major component during and at the end of its useful life.

10.20.3.5 A reserve funding plan that recommends how the Association may fund the annual contribution described in Article 10.20.3.4:

10.20.4 Providing Reserve Analysis to Owners. Each year the Association shall provide a summary of the most recent reserve analysis, including any updates, to each Owner. Owners may receive a complete copy of the reserve analysis upon a request submitted to the Board.

ARTICLE 11
ENFORCEMENT OF ASSESSMENTS; LIEN RIGHTS

11.1 Delinquency. Assessments not paid within the time required shall be delinquent. Whenever an Assessment is delinquent, the Board of Directors may, at its option, invoke any all of the remedies granted in this Article.

11.2 Collection Charges and Interest. The Board shall have the right to adopt written procedures for the purpose of making the Assessments provided herein and for the billing and collection of the Assessments, provided that said procedures are not inconsistent with the provisions hereof. If the

Association does not otherwise adopt or establish billing and collection procedures in the Rules, the following shall apply. Assessments shall be due and payable on the first (1st) day of each month and shall be considered late if not received by the tenth (10th) day of the month. Accounts with an unpaid balance after the tenth (10th) day of each month shall be charged a late fee of thirty-five dollars ($35.00). In addition to late fees, interest may accrue on all unpaid balances, including unpaid prior attorney fees, interest (resulting in compounding of interest), late fees, and Assessments, at eighteen percent (18%) per annum. The Association may also assess to the Owner a collection charge, late fee, and any other reasonable fee charged by a Manager related to collections. The failure of the Association to send a bill to a Member, shall not relieve any Member of his or her liability for any Assessment or charge under this Declaration, but the Assessment Lien therefore shall not be foreclosed or otherwise enforced in accordance with this Article11 until the Member has been given not less than fifteen (15) days written notice prior to the commencement of such foreclosure or enforcement, at the address of the Member on the records of the Association, that the Assessment or any installment thereof is or will be due and of the amount owing. Such notice may be given at any time prior to or after the delinquency of such payment.

11.3 Joint and Several Liability of Owner and Future Owners. The Owner and any future Owners of a Lot are jointly and severally liable for all Assessments accruing related to that Lot prior to and during the time that an Owner is an Owner. An Owner is not liable for any Assessments accruing after he/she has lawfully transferred the Lot to another Owner. The Association shall be under no duty to refund any payments received by it even though the ownership of a Lot changes during an Assessment Period; successor Owners shall be given credit for prepayments, on a prorated basis, made by prior Owners. The amount of the Annual Assessment against Members who acquire a Lot from a qualified Builder during an Assessment Period shall be prorated and such new Members shall not be liable for any previously levied Assessments.

The recording of a deed to a Person that has not agreed to take ownership of the Lot shall not be considered a legal conveyance of title. The obligation in this paragraph is separate and distinct from any lien rights associated with the Lot.

11.4 Lien. The Association has a lien on each Lot for all Assessments, which include but are not limited to interest, collection charges, late fees, attorney fees, court costs, and other costs of collection (which shall include all collection costs and shall not be limited by those costs that may be awarded by a court under the Utah Rules of Civil Procedure). This lien shall arise and be perfected as of the date of the recording of this Declaration and shall have priority over all encumbrances recorded after this Declaration is recorded, except as otherwise required by law. If an Assessment is payable in installments, the lien is for the full amount of the Assessment from the time the first installment is due, unless the Association provides otherwise in the notice of Assessment. The Association also has a lien on each Lot for all fines imposed against an Owner by the Association. This lien for fines shall arise when (1) the time for appeal described in Utah Code § 57-8a-208(5) has expired and the Owner did not file an appeal; or (2) the Owner timely filed an appeal under Utah Code § 57-8a-208(5) and the district court issued a final order upholding the fine. The Association's lien shall have priority over every other lien and encumbrance on a Lot except: (1) a lien or encumbrance recorded before this Declaration is recorded; (2) a first or second security interest on the Lot secured by a mortgage or trust deed that is recorded before a recorded notice of lien by or on behalf of the Association; and (3) a lien for real estate taxes or governmental assessments or charges against the Lot. The Association may, but need not, record a notice of lien on a Lot.

11.5 Action at Law. The Association may bring an action to recover a delinquent Assessment either personally against the Owner obligated to pay the same or by foreclosure of the Assessment lien. In addition, the Association's choice of one remedy shall not prejudice or constitute a waiver of the Association's right to exercise any other remedy. Any attorney fees and costs incurred in this effort shall be assessed against the delinquent Owner and the Owner's Lot, and reasonable attorney fees and costs will thereafter be added to the amount in delinquency (plus interest and collection charges, if appropriate).

Each Owner vests in the-Association, or its assigns, the right and power to bring actions at law or lien foreclosures against such Owner or Owners for the collection of delinquent Assessments.

11.6 Foreclosure. The Association shall have all rights of foreclosure granted by the Act, both judicially and non-judicially. Pursuant to Utah Code §§ 57-1-20 and 57-8a-302, an Owner's acceptance of an interest in a Lot constitutes a simultaneous conveyance of the Lots in trust, with power of sale, to the Association's attorney of record, as trustee, for the benefit of the Association, for the purpose of securing payment of Assessments under the terms of this Declaration. The Association may appoint a qualified successor trustee by executing and recording a substitution of trustee form.

11.7 Homestead Waiver. Pursuant to Utah Code § 57-8a-301, and to the extent any liens are created pursuant to this Declaration, whether such liens are now in existence or are created at any time in the future, each Owner waives the benefit of any homestead or exemption laws of the State of Utah now in effect, or in effect from time to time hereafter.

11.8 Termination of Delinquent Owner's Rights. The Association shall have all rights provided for in the Act to terminate a delinquent Owner's: (1) rights to vote, (2) access to the amenities in the Community, and (3) rights to receive a utility or other service paid for as a Common Expense.

11.9 Requiring Tenant to Pay Rent to Association. Pursuant to and as provided for in the Act, the Association shall have a right to demand and collect rent from any Occupant in a Dwelling for any delinquent Each Occupant, by moving into the Community, agrees to be personally liable and responsible to the Association for all rent payments after the Association gives proper notice that rent payments shall be paid to the Association. If an Owner fails to pay Assessments or other amounts due under this Declaration for a period of more than sixty (60) days after such amounts are due and payable, the Association may require a Tenant (defined below) under a Lease (defined below) with an Owner to pay the Association all future Lease payments due to the Owner beginning with the next monthly or periodic payment due from the Tenant and until the Association is paid the Amount Owing (defined below), in accordance with the procedure set forth below.

11.9.1 Notice to Owner. Before requiring a Tenant to pay Lease payments to the Association, the Board shall give the Owner notice ("Notice to Landlord"), which notice shall state: (a) the amounts due, including any interest, late fee, collection cost, and attorney fees; (b) that any costs of collection, including attorney fees, and other assessments that become due may be added to the total amount due and be paid through the collection of Lease payments; and (c) that the Association intends to demand payment of future Lease payments from the Owner's Tenant if the Owner does not pay the Amount Owing within fifteen (15) days.

11.9.2 Notice to Tenant. If an Owner fails to pay the Amount Owing within fifteen (15) days after the Board gives the Notice to Landlord, the Association may collect Lease payments by the Board delivering written notice to the Tenant of Owner ("Notice to Tenant"), which notice shall state that: (a) due to the Owner's failure to pay an assessment within the required time, the Board has notified the Owner of the Association's intent to collect all Lease payments until the Amount Owing is paid; (b) the law requires the Tenant to make all future Lease payments, beginning with the next monthly or other periodic payment, to the Association, until the Amount Owing is paid; and (c) the Tenant's payment of Lease payments to the Association does not constitute a default under the terms of the Lease with the Owner. The Common Area Manager or Board shall mail a copy of the Notice to Tenant to the Owner.

11.9.3 Payments to Association and Credit under Lease. A Tenant to whom the Notice to Tenant has been given shall pay to the Association all future Lease payments as they become due and owing to the Owner: (a) beginning with the next monthly or other periodic payment after the Notice to Tenant is delivered to the Tenant; and (b) until the Association notifies the Tenant that

the Amount Owing is paid. An Owner shall credit each payment that the Tenant makes to the Association under this section against any obligation that the Tenant owes to the Owner as though the Tenant made the payment to the Owner. An Owner may not initiate a suit or other action against a Tenant for failure to make a Lease payment that the Tenant pays to the Association as required under this section. Within five (5) business days after the Amount Owing is paid, the Board shall notify the Tenant in writing (and mail a copy thereof to the Owner) that the Tenant is no longer required to pay future Lease payments to the Association. The Board shall deposit money paid to the Association under this section in a separate account and disburse that money to the Association until the Amount Owing is paid and any cost of administration, not to exceed the maximum amount set forth in the Act (if any) is paid. The Association shall, within five (5) business days after the Amount Owing is paid, pay to the Owner any remaining balance.

11.9.4 Terms. As used in this section "Amount Owing" means the total of any assessment or obligation under this Declaration that is due and owing together with any applicable interest, late fee, and cost of collection; "Lease" means an arrangement under which a Tenant occupies a Dwelling in exchange for the Owner receiving a consideration or benefit, including a fee, service, gratuity, or other compensation; and "Tenant" means a person, other than the Owner, who has regular, exclusive occupancy of an Owner's Dwelling.

11.10 Attorney Fees. In addition to any attorney fees and costs provided for herein, the Association shall be entitled to recover all reasonable attorney fees and costs incurred as a result of an Owner's failure to timely pay Assessments, including but not limited to attorney fees and costs incurred to: (1) obtain advice about a default; (2) collect unpaid Assessments; (3) file lawsuits or other legal proceedings related to a default in an effort to collect unpaid Assessments; (4) file pleadings, notices, objections, and proofs of claim in any bankruptcy proceeding; (5) examine the debtor or others related to collections; (6) monitor any bankruptcy proceedings including but not limited to regular monitoring of an Owner's progress in a chapter 13 or chapter 11 plan for the duration of the plan; (7) file any motions, objections, or other adversary proceedings in a bankruptcy matter and all related activities including seeking and responding to discovery; taking depositions or examinations; introducing evidence, hiring and paying expert witnesses; filing motions, pleadings, and other papers; attending trials, hearings, or other court proceedings, including as reasonably necessarily related to assert any non-dischargeability of debts, to assert claims against the estate or co-debtors, to challenge exemptions, to pursue any appropriate adversary proceeding, or for any other reason related to the ultimate attempt to collect unpaid Assessments; and (8) foreclose a lien, secure lien rights, or prepare any notice of lien. This provision is to be construed broadly to permit the Association to recover any reasonable fees and costs in any way related to an Owner's default in the payment of Assessments and the ultimate collection of those Assessments.

11.11 Association Responsibility after Foreclosure. If the Association takes title to a Lot pursuant to a foreclosure (judicial or non-judicial), it shall not be bound by any of the provisions related to the Lot that are otherwise applicable to any other Owner, including but not limited to obligations to pay assessments, taxes, or insurance, or to maintain the Lot. By taking a security interest in any Lot governed by this Declaration, Mortgagees cannot make any claim against the Association for nonpayment of taxes, Assessments, or other costs and fees associated with any Lot if the Association takes title to a Lot related to any failure to pay Assessments.

ARTICLE 12
MAINTENANCE

12.1 Common Areas and Public Right-of-Way. The Association, or its duly delegated representative, shall maintain Millennium Park, as provided in the Millennium Park Easement Agreement, in addition to the maintenance and management of all Common Areas, including, but not

limited to, the landscaping, walkways, open space, riding paths, parking areas, drives, recreational facilities and the roofs, interiors and exteriors of the buildings and structures located upon said properties; provided, however, the Association shall not be responsible for providing or maintaining the landscaping or structures on any Common Areas that are part of Lots unless (i) such landscaping or structures are available for use by all Owners and Residents or are. within easements intended for the general benefit of the Community and (ii) the Association assumes in writing the responsibility as set forth in a Recorded instrument as hereinafter provided. The Association shall also maintain any landscaping and other Improvements not on Lots that are within the exterior boundaries of the Community, that are within areas shown on a Plat or other plat of dedication for the Community or covered by a Supplemental Declaration and that are intended for the general benefit of the Owners and Residents of the Community, except the Association shall not maintain areas (a) owned by a Municipal Authority, or (b) are to be maintained by the Owners of a Lot pursuant to Articles 8.7 and 12.4 of this Declaration. Specific areas to be maintained by the Association may be identified on Plats Recorded-or approved by the Declarant, in Supplemental Declarations and in Deeds from the Declarant to a transferee of one or more Lots, but the failure to so identify such areas shall not affect the Association's rights or responsibilities with respect to such Common Areas and other areas intended for the general benefit of the Community. Neither the Declarant, the Association, or the Board, shall be liable for any loss or damage to persons or property resulting from fire or any other natural disaster, including without limitation, earthquake.

12.2. Standard of Care. The Board shall use a reasonably high standard of care in providing for the repair, management and maintenance of said property so that the Community will reflect a high grade of ownership. In this connection, the Association may, subject to any applicable provisions on Special Assessments for capital Improvements, in the discretion of the Board:

12.2.1 Reconstruct, repair, replace or refinish any Improvement or portion thereof upon Association Land;

12.2.2 Construct, reconstruct, repair, replace or refinish any road Improvement or surface upon any portion of the Common Areas used as a road, street, walk, driveway or parking area, except that no permanent Improvements shall be made by the Association on any Common Area that is not Association Land and the Association shall provide only maintenance on Common Areas that are not Association Land;

12.2.3 Remove and replace, as appropriate, injured and diseased trees and other vegetation in any Common Area, and plant trees, shrubs and ground cover to the extent that the Board deems necessary for the conservation of water and soil, maintaining fuel breaks and for aesthetic purposes;

12.2.4 Place and maintain upon any Common Area such signs as the Board may deem appropriate for the proper identification, use and regulation thereof; and

12.2.5 Do all such other and further acts that the Board deems necessary to preserve and protect the Common Areas and the beauty thereof, in accordance with the general purposes specified in this Declaration.

12.2.6 The Board shall be the sole judge as to the appropriate maintenance of all Common Areas and other properties maintained by the Association. Any cooperative action necessary or appropriate to the proper maintenance and upkeep of said properties shall be taken by the Board or by its duly delegated representative.

12.2.7 In the event any Plat, Supplemental Declaration, Deed restriction or this Declaration permits the Board to determine whether or not Owners of certain Lots will be responsible for maintenance of certain Common Areas or public right-of-way areas, the Board

shall have the sole discretion to determine whether or not it would be in the best interest of the Owners and Residents of the Community for the Association or for an individual Owner or a Neighborhood Association to be responsible for such maintenance, considering cost, uniformity of appearance, location and other factors deemed relevant by the Board. The Board may cause the Association to contract with others for the performance of the maintenance and other obligations of the Association under this Article 12 and, in order to promote uniformity and harmony of appearance, the Board may also cause the Association to contract to provide maintenance services to Owners of Lots and Parcels having such responsibilities in exchange for the payment of such fees as the Association and Owner may agree upon.

12.3 Assessment of Certain Costs of Maintenance and Repair of Common Areas and Public Areas. In the event that the need for maintenance or repair of Common Areas, structures and other property maintained by the Association is caused through the willful or negligent act of any Owner or Resident of a Lot, or any family, guests, invitees or tenants of such Persons, the cost of such maintenance or repairs shall he added to and become a part of the Assessment to which such Owner and the Owner's Lot is subject and shall be secured by the Assessment Lien. Any charges or fees to be paid by the Owner of a Lot pursuant to Article 12.1 in connection with a contract entered into by the Association with an Owner for the performance of an Owner's maintenance responsibilities shall also become a part of such Assessment and shall be secured by the Assessment Lien.

12.4. Maintenance and Use of Lots. Each Dwelling, Improvement and Lot Parcel shall be properly maintained by the Owner so as not to detract from the appearance of the Community and so as not to affect adversely the value or use of any other Dwelling, Improvement or Lot. In the event any portion of any Lot is so maintained as to present a public or private nuisance, or as to substantially detract from the appearance or quality of the surrounding Lots and Parcels or other areas of the Community that are substantially affected thereby or related thereto, or in the event any portion of a or Lot is being used in a manner that violates this Declaration or any Supplemental Declaration applicable thereto, or in the event the Owner of any Lot is failing to perform any of its obligations under the Governing Documents and standards of the Design Review Committee, the Board may by resolution make a finding to such effect, specifying the particular condition or conditions that exist, and pursuant thereto give notice thereof to the offending Owner that unless corrective action is taken within fourteen (14) days, the Board may cause such action to be taken at said Owner's cost. If at the expiration of said 14-day period of time the requisite corrective action has not been taken, the Board shall be authorized and empowered to cause such action to be taken and the cost thereof shall be added to and become a part of the Assessment to which the offending Owner and the Owner's or Lot is subject and shall be secured by the Assessment Lien.

ARTICLE 13
INSURANCE AND FIDELITY BONDS

NOTICE: The Association's Insurance Policies do not cover the personal property or personal liability of the Owners or their Occupants.

13.1 Insurance Requirement. The Association shall obtain insurance as required in this Declaration and as required by applicable law. The Association may obtain insurance that provides more or additional coverage than the insurance required in this Declaration. Different policies may be obtained from different insurance carriers and stand-alone policies may be purchased instead of or in addition to embedded, included coverage, or endorsements to other policies. The Association's insurance premiums shall be a Common Expense.

13.2 Common Area Property Insurance. To the extent that any structure that is normally insured under a property insurance policy is installed or erected on the Common Area and is the Association's obligation to maintain, the Association shall maintain a policy of property insurance covering the

Common Area, including all buildings and improvements, building service equipment, and fixtures thereon.

13.2.1 The blanket policy shall exclude land and other items not normally and reasonably covered by such policies. The blanket policy shall be an "all in" or "all inclusive" insurance as those terms are used in the insurance industry and shall include insurance for any fixture, improvement, or betterment installed in or to or otherwise permanently part of or affixed to Common Areas, including but not limited to floor coverings, cabinets, light fixtures, electrical fixtures, heating and plumbing fixtures, paint, wall coverings, and windows.

13.2.2 At a minimum, the blanket policy shall afford protection against loss or damage by: (1) fire, windstorm, hail, riot, aircraft, vehicles, vandalism, smoke, and theft and (2) all perils normally covered by "special form" property coverage.

13.2.3 The blanket policy shall be in an amount not less than one hundred percent (100%) of current replacement cost of all property covered by such policy at the time the insurance is purchased and at each renewal date. The actual replacement cost of the property shall be determined by using methods generally accepted in the insurance industry.

13.2.4 The Association shall set aside an amount equal to the amount of the Association's property insurance policy deductible or, if the policy deductible exceeds ten thousand dollars ($10,000), an amount not less than ten thousand dollars ($10,000).

13.3 Attached Dwelling Property Insurance. The Association shall maintain a blanket policy of property insurance covering all buildings containing attached townhome Dwellings, including all fixtures, and building services equipment as provided in the Act. The Association may maintain broader coverage if afforded by the insurance contract.

13.3.1 The blanket policy shall exclude land and other items not normally and reasonably covered by such policies. The blanket policy shall be an "all in" or "all inclusive" insurance as those terms are used in the insurance industry and shall include insurance for any fixture, improvement, or betterment installed in or to the Dwelling or any Limited Common Areas or otherwise permanently part of or affixed to Common Areas, Dwellings, or Limited Common Areas, including but not limited to floor coverings, cabinets, light fixtures, electrical fixtures, heating and plumbing fixtures, paint, wall coverings, windows.

13.3.2 At a minimum, the blanket policy shall afford protection against loss or damage by: (1) fire, windstorm, hail, riot, aircraft, vehicles, vandalism, smoke, and theft; and (2) all perils normally covered by "special form" property coverage.

13.3.3 The blanket policy shall be in an amount not less than one hundred percent (100%) of current replacement cost of all property covered by such policy (including the Dwellings) at the time the insurance is purchased and at each renewal date. The actual replacement cost of the property shall be determined by using methods generally accepted in the insurance industry.

13.3.4 The blanket policy shall include either of the following endorsements to assure full insurable value replacement cost coverage: (1) a Guaranteed Replacement Cost Endorsement under which the insurer agrees to replace the insurable property regardless of the cost; and (2) a Replacement Cost Endorsement under which the insurer agrees to pay up to one hundred percent (100%) of the Property's insurable replacement cost but not more. If the policy includes a coinsurance clause, it must include an Agreed Amount Endorsement which must waive or eliminate the requirement for coinsurance.

13.3.5 Each property policy that the Association is required to maintain shall also contain or provide for the following: (i) "Inflation Guard Endorsement," if available, (ii) "Building

Ordinance or Law Endorsement," (the endorsement must provide for contingent liability from the operation of building laws, demolition costs, and increased costs of reconstruction), and (iii) "Equipment Breakdown," if the project has central heating or cooling or other equipment or other applicable fixtures, equipment, or installation, which shall provide that the insurer's minimum liability per accident at least equals the lesser of two million dollars ($2,000,000) or the insurable value of the building containing the equipment.

13.3.6 The costs of the attached dwelling property insurance shall be allocated only to the Dwellings benefitted by such insurance as part of a Service Area assessment.

13.3.7 If a loss occurs that is covered by a property insurance policy in the name of the Association and another property insurance policy in the name of an Owner then the Association's policy provides primary insurance coverage, and: (i) the Owner is responsible for the Association's policy deductible; and (ii) the Owner's policy, if any, applies to that portion of the loss attributable to the Association's policy deductible.

13.3.8 The Association shall provide notice to each Owner of the Owner's obligation under Subsection (13.3.7) above for the Association's policy deductible and of any change in the amount of the deductible. If the Association fails to provide notice of the initial deductible, it shall be responsible for the entire deductible in case of any loss. If the Association fails to provide notice of any increase in the deductible, it shall be responsible for paying any increased amount that would otherwise have been assessed to the Owner. The failure to provide notice shall not invalidate or affect any other provision in this Declaration.

13.3.9 If, in the exercise of its business judgment, the Board determines that a claim is likely not to exceed the Association's policy deductible: (i) the Owner's policy is considered the policy for primary coverage to the amount of the Association's policy deductible; (ii) an Owner who does not have a policy to cover the Association's property insurance policy deductible is responsible for the loss to the amount of the Association's policy deductible; and (iii) the Association need not tender the claim to the Association's insurer.

13.4 Comprehensive General Liability (CGL) Insurance. The Association shall obtain CGL insurance insuring the Association, the agents and employees of the Association, and the Owners, against liability incident to the use, repair, replacement, maintenance, or ownership of the Common Area and the Owners' membership in the Association. The coverage limits under such policy shall not be less than two million dollars ($2,000,000) covering all claims for death of or injury to any one individual or property damage in any single occurrence. Such insurance shall contain a Severability of Interest Endorsement or equivalent coverage which would preclude the insurer from denying the claim of an Owner because of the negligent acts of the Association or another Owner.

13.5 Directors' and Officers' Insurance. The Association shall obtain Directors' and Officers' liability insurance protecting the Declarant, the Board, the officers, and the Association against claims of wrongful acts and mismanagement. To the extent reasonably available, this policy shall include coverage for: (1) failure to maintain adequate reserves, (2) failure to maintain books and records, (3) failure to enforce the Governing Documents, (4) breach of contract, (5) volunteers and employees, (6) monetary and non-monetary claims, (7) claims made under fair housing act or similar statutes or that are based on discrimination or civil rights claims, and (8) defamation. In the discretion of the Board, the policy may also include coverage for the Manager and its employees and may provide that such coverage is secondary to any other policy that covers the Manager or its employees.

13.6 Theft and Embezzlement Insurance. The Association may obtain insurance or fidelity bonds covering the theft or embezzlement of funds by Board Members, officers, employees, Manager, and contractors of the Association in the discretion of the Board.

13.7 Workers' Compensation Insurance. The Board shall purchase and maintain in effect workers' compensation insurance for all employees, if any, of the Association to the extent that such insurance is required by law or as the Board deems appropriate.

13.8 Other Insurance. The Association may purchase earthquake, flood, or other types of insurance that may benefit the Project, as the Board deems appropriate.

13.9 Right to Negotiate All Claims & Losses & Receive Proceeds. Insurance proceeds for a loss under the Association's property insurance policy shall be payable to the Association and shall not be payable to a holder of a security interest. The Association shall hold any insurance proceeds in trust for the Association, Owners, and lien holders. Insurance proceeds shall be disbursed first for the repair or restoration of the damaged property, if the property is to be repaired and restored as provided for in this Declaration. After any repair or restoration is complete and if the damaged property has been completely repaired or restored, any remaining proceeds shall be paid to the Association. If the property is not to be repaired or restored, then any remaining proceeds after such action as is necessary and is related to the property has been paid for, shall be distributed to the Owners and lien holders, as their interests remain with regard to the Lots. Each Owner hereby appoints the Association as attorney-in-fact for the purpose of negotiating all losses related thereto, including: (1) the collection, receipt of, and appropriate disposition of all insurance proceeds; (2) the execution of releases of liability; (3) the execution of all documents; and (4) the performance of all other acts necessary to administer such insurance and any claim. This power-of-attorney is coupled with an interest, shall be irrevocable, and shall be binding on any heirs, personal representatives, successors, or assigns of an Owner.

13.10 Certificates. Any insurer that has issued an insurance policy to the Association shall issue a certificate of insurance to the Association and, upon written request, to any Owner or Mortgagee.

13.11 Named Insured. The named insured under any policy of insurance shall be the Association; and the Declarant shall be listed by name as an additional insured under any and all policies of insurance. The Declarant and each Owner shall also be an insured under the Association's insurance policies as required by law.

13.12 Waiver of Subrogation Against Owners and Association. All property and CGL policies must contain a waiver of subrogation by the insurer as to any claims against the Declarant, the Association, the Owners, and their respective affiliates, agents, and employees.

13.13 Right of Action. Nothing in this Declaration shall prevent an Owner suffering a loss as a result of damage to property from asserting a claim, either directly or through subrogation, for the loss against any Person or entity at fault for the loss.

13.14 Annual Review of Policies and Coverage. The Board shall review all insurance policies at least annually to ascertain whether the coverage contained in the policies is sufficient to make any necessary repairs or replacement of the Community Areas and Improvements thereon that may have been damaged or destroyed. In addition, such policies shall be reviewed to determine their compliance with the 'provisions of this Master Declaration. In the event any of the insurance coverage provided for in this Article 13 is not available at a reasonable cost or is not reasonably necessary to provide the Community with adequate insurance protection, as determined by the Board, the Board shall have the right to obtain different insurance coverage or insurance coverage that does not meet all of the requirements of this Article 13 so long as, at all times, the Board maintains insurance coverage on a basis that is consistent with the types and amounts of insurance coverage obtained for projects similar to the Community. Additionally, the Board shall give Owners notice within seven (7) days if any such insurance is not reasonably available.

13.15 Applicable Law. This Declaration is specifically subjecting the Association to the insurance requirements and provisions in Part 4 of the Act, and any amendments thereto and thereafter enacted by

law. It is the intent of this provision that any future changes to the insurance law applicable to community associations shall apply to the Association.

13.16 Owner Insurance. Each Owner shall be responsible to purchase and maintain in force appropriate hazard, content, and liability insurance as such Owner shall determine to be appropriate to the Owner's needs and circumstances. The Association is not required to file claims on any of its policies for any damage or liability claim that either should or would have been covered under any Owner's policy.

ARTICLE 14
DAMAGE OR DESTRUCTION

14.1 Association as Attorney in Fact. Each and every Owner hereby irrevocably constitutes and appoints the Association as such Owner's true and lawful attorney-in-fact in such Owner's name, place, and stead for the purpose of dealing with the Improvements on the Common Areas upon damage or destruction as provided in this Article or a complete or partial taking as provided in Article 15 below. Acceptance by any grantee of a Deed or other instrument of conveyance from the Declarant or from any Owner shall constitute appointment of the attorney-in-fact as herein provided. As attorney-in-fact, the Association shall have full and complete authorization, right, and power to make, execute, and deliver any contract, assignment, Deed, waiver, or other instrument with respect to the interest of any Owner that may be necessary or appropriate to exercise the powers granted to the Association as attorney-in-fact. All proceeds from the insurance required hereunder shall be payable to the Association except as otherwise provided in this Declaration.

14.2 Estimate of Damages or Destruction. As soon as practical after an event causing damage to or destruction of any part of the Improvements on the Common Areas in the Community, the Association shall, unless such damage or destruction shall be minor, obtain an estimate or estimates that it deems reliable and complete of the costs of repair and reconstruction of that part of the Common Areas so damaged or destroyed. "Repair and reconstruction" as used in this Article 14 shall mean restoring the damaged or destroyed Improvements to substantially the same condition in which they existed prior to the damage or destruction.

14.3 Repair and Reconstruction. As soon as practical after obtaining estimates, the Association shall diligently pursue to completion the repair and reconstruction of the damaged or destroyed Improvements. As attorney-in-fact for the Owners, the Association may take all necessary or appropriate action to effect repair and reconstruction, and no consent or other action by any Owner shall be necessary. Assessments of the Association shall not be abated during the period of insurance adjustments and repair and reconstruction.

14.4 Funds for Repair and Reconstruction. The Association shall have full authority to negotiate in good faith with representatives of the insurer with regard to any totally or partially destroyed Common Area structure or improvement, and to make settlements with the insurer for less than full insurance coverage on the damage to such building or any other portion of the Common Area. Any settlement made by the Association in good faith shall be binding upon all Owners and Mortgagees. The proceeds received by the Association from any hazard insurance shall be used for the purpose of repair, replacement, and reconstruction. If the proceeds of the insurance are insufficient to pay the estimated or actual cost of such repair and reconstruction, the Association may, pursuant to Article 10.9 above, levy, assess, and collect in advance from all Owners, without the necessity of a special vote of the Owners, a Special Assessment sufficient to provide funds to pay such estimated or actual costs of repair and reconstruction. Further levies may be made in like manner if the amounts collected prove insufficient to complete the repair and reconstruction.

14.5 Disbursement of Funds for Repair and Reconstruction. The insurance proceeds held by the Association and the amounts received from the Special Assessments provided for in Article 10.9 above

constitute a fund for the payment of the costs of repair and reconstruction after casualty. It shall be deemed that the first money disbursed in payment for the costs of repair and reconstruction shall be made from insurance proceeds, and the balance from the Special Assessments. If there is a balance remaining after payment of all costs of such repair and reconstruction, such balance shall be distributed to the Owners in proportion to the contributions each Owner made as a Special Assessment to the Association under Article 10.9 above, or, if no Special Assessments were made, then in equal shares per Membership, first to the Mortgagees and then to the Owners, as their interests appear.

14.6 Decision Not to Rebuild. If Members representing at least seventy-five percent (75%) of the votes of each class of Members in the Association (with Voting Members casting the votes of the Class A Members) vote not to repair and reconstruct and no alternative Improvements are authorized, then and in that event the affected portion of the Common Areas shall be restored to their Natural state ‘and maintained as an undeveloped portion of the Common Areas by the Association in a neat and attractive condition, and any remaining insurance proceeds shall be distributed in equal shares per Membership first to the Mortgagees and then to the Owners, as their interests appear.

14.7 Repair of Lots. Installation of improvements to, and repair of any damage to those structures, improvements, facilities and elements of privately owned Lots shall be made by and at the individual expense of the Owner of each affected Lot and, in the event of a determination to reconstruct after partial or total destruction, shall be completed as promptly as practicable, and in a lawful and workmanlike manner.

14.8 Priority. Nothing contained in this Article shall entitle an Owner to priority over any Mortgagee under a lien encumbering the Owner’s Lot as to any portion of insurance proceeds allocated to such Lot,

ARTICLE 15
CONDEMNATION

15.1 Rights of Owners. Whenever all or any part of the Common Areas shall be taken or conveyed in lieu of and under threat of condemnation, each Owner shall be entitled to notice of the taking, but the Association shall act as attorney-in-fact for all Owners in the proceedings incident to the condemnation proceeding, unless otherwise prohibited by law.

15.2 Partial Condemnation; Distribution of Award; Reconstruction. The award made for such taking shall be payable to the Association as trustee for all Owners to be disbursed according to this Article 15.2. If the taking involves a portion of the Common Areas on which Improvements have been constructed, then, unless within sixty (60) days after such taking Declarant and Owners representing at least seventy-five percent (75%) of the Class A votes in the Association shall otherwise agree, the Association shall restore or replace such Improvements so taken on the remaining land included in the Common Areas to the extent lands are available therefor, in accordance with plans approved by the Board and the Design Review Committee. If such Improvements are to be repaired or restored, the provisions in Article 14 above regarding the disbursement of funds in respect to casualty damage or destruction that is to be repaired shall apply. If the taking does not involve any Improvements on the Common Areas, or if there is a decision made not to repair or restore, or if there are net funds remaining after any such restoration or replacement is completed, then such award or net funds shall be distributed in equal shares per Membership, first to the Mortgagees and then to the Owners, as their interests appear.

15.3 Complete Condemnation. If all of the Community is taken, condemned, sold, or otherwise disposed of in lieu of or in avoidance of condemnation, then the regime created by this Declaration shall terminate, and the portion of the condemnation award attributable to the Common Areas shall be distributed to Owners based upon the relative value of the Lots, Dwellings and Parcels (as applicable) prior to the condemnation.

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ARTICLE 16
ADDITIONAL LAND

16.1 Right to Expand and State of Title to New Lots. There is hereby granted unto Declarant, and Declarant hereby reserves, the absolute right and option to expand the Community at any time (within the limits herein prescribed) and from time to time by adding to the Community the Additional Land or a portion or portions thereof. Notwithstanding any provision of this Declaration that might be construed to the 'contrary, such right and option may be exercised without obtaining the vote or consent of any other person (including any Owner or Mortgagee) and shall be limited only as specifically provided in this Declaration. Any given portion of the Additional Land shall be deemed added to the Community at such time as a Supplemental Declaration containing the information required by Article 16.3 below has been Recorded with respect to the portion of the Additional Land concerned. After the date such Supplemental Declaration is Recorded, title to each Lot and Parcel thereby created within the portion of the Additional Land concerned and its appurtenant right and easement of use and enjoyment in and to the Common Areas shall be vested in and held by Declarant, and none of the other Owners or the Association shall have any claim or title to or interest in such Lot and Parcel or its appurtenant right and easement of use and enjoyment to the Common Areas.

16.2 Rights and Statements Respecting Additional Land. Declarant hereby furnishes the following information and statements respecting the Additional Land and Declarant's right and option concerning expansion of the Community by the addition thereto of the Additional Land or a portion or portions thereof:

16.2.1 All of the Additional Land need not be added to the Community if any of such Additional Land is added. Rather, a portion or portions of the Additional Land may be added to the Community at any time (within the limits herein prescribed) and from time to time.

16.2.2 There are no limitations or requirements relative to the size, location, or configuration of any given portion of the Additional Land that can be added to the Community or relative to the order in which particular portions of the Additional Land can be added to the Community. Provided, however, future Improvements shall be consistent with the initial improvements in quality of construction and shall be subject to the Design Guide.

16.3 Procedure for Expansion. Each Supplemental Declaration by which an addition to the Community of any portion of the Additional Land is accomplished shall be executed by Declarant, shall be in recordable form, and must be Recorded on or before the date that is fifty (50) years from the date that this Declaration is Recorded, and shall contain the following information for that portion of the Additional Land that is being added:

16.3.1 Data sufficient to identify this Declaration with respect to that portion of the Additional Land being added.

16.3.2 The legal description of the portion of the Additional Land being added.

16.3.3 A statement that such portion of the Additional Land shall thereafter be held, transferred, sold, conveyed, and occupied subject to the covenants, restrictions, easements, charges, and liens set forth in this Declaration.

16.3.4 Such other matters as may be necessary; desirable, or appropriate and as are not inconsistent with any limitation imposed by this Declaration, including to the extent as determined by the Declarant, the fixing of the Land Use Classifications of the Additional Land.

Upon the date any supplement contemplated above is Recorded, it shall automatically supplement this Declaration and any supplements previously Recorded. At any point in time, this Declaration for the Community shall consist of this Declaration, as amended and expanded by all supplements theretofore Recorded pursuant to the terms hereof.

16.4 Allocation of Assessments and Voting Rights Following Expansion. Each or Lot created shall be apportioned a share of the Common Expenses attributable to the Community, as provided in Article 6.1. Each Owner of a or Lot shall be entitled to votes in the Association as provided for in Article 6.3. Assessments and voting rights shall commence as of the date the Declarant executes a Supplemental Declaration.

16.5 No Obligation to Expand. Except to the extent specifically indicated herein, this Declaration is not intended, and shall not be construed so as, to impose upon Declarant any obligation respecting, or to restrict Declarant in any way with regard to: (i) the addition to the Community of any all of the Additional Land; (ii) the creation or construction of any Lot or other Improvement; (iii) the carrying out in any particular way or within any particular time of any development or addition that may be undertaken; or (iv) the taking of any particular action with respect to any portion of the Additional Land. Except to the extent specifically indicated herein, no covenant, restriction, limitation, representation, or commitment in this Declaration concerning anything that is or is not to occur, apply, or be done on or relative to the Additional Land or any portion thereof shall be binding as to such of the Additional Land as is never added to the Community.

16.6 Withdrawal of Property. At any time on or before the date that is fifty (50) years form the date that this Declaration is Recorded, the Declarant shall have the right to withdraw property ("Withdrawable Land") from the Community without the consent of any other Owner or Person (other than the Owner of such Withdrawable Land, if other than the Declarant). The withdrawal of all or any portion of the Withdrawable Land from the Community shall be effected by the Declarant Recording a written instrument that shall contain the following information for that portion of the Withdrawable Land that is being withdrawn:

16.6.1 Data sufficient to identify this Declaration with respect to that portion of the Withdrawable Land being withdrawn.

16.6.2 The legal description of the portion of the Withdrawable Land being withdrawn.

16.6.3 A statement that such portion of the Withdrawable Land shall thereafter be free and clear of the covenants, restrictions, easements, charges, and liens set forth in this Declaration.

16.6.4 Such other matters as may be necessary, desirable, or appropriate and as are not inconsistent with any limitation imposed by his Declaration.

Upon the date any supplement contemplated above is Recorded, it shall automatically supplement this Declaration and any supplements previously Recorded and upon the withdrawal of any Withdrawable Land from the Community pursuant to this Article, such property shall no longer be subject to any of the covenants, conditions and restrictions set forth in this Declaration.

ARTICLE 17
MORTGAGEE REQUIREMENTS

17.1 Notice of Action. Upon written request made to the Association by a Mortgagee, or an insurer or governmental guarantor of a Mortgage, which written request shall identify the name and address of such Mortgagee, insurer or governmental guarantor and the Lot number or address of the

Dwelling, any such Mortgagee, insurer or governmental guarantor shall be entitled to timely written notice of:

17.1.1 Any condemnation loss or any casualty loss that affects a material portion of the Community or any Lot on which there is a Mortgage held, insured or guaranteed by such Mortgagee, insurer or governmental guarantor;

17.1.2 Any delinquency in the payment of Assessments or charges owed by an Owner, whose or Lot is subject to a Mortgage held, insured or guaranteed by such Mortgagee, insurer or governmental guarantor, which default remains uncured for a period of sixty (60) days; and

17.1.3 Any lapse, cancellation or material modification of any insurance policy or fidelity bond or insurance maintained by the Association.

17.2. Availability of the Community Documents and Financial Statements. The Association shall maintain and have current copies of the Governing Documents and other rules concerning the Community as well as its own books, records, and financial statements available for inspection by Owners or by holders, insurers, and guarantors of Mortgages that are secured by Lots or Parcels. Generally, these documents shall be available during normal business hours.

17.3. Subordination of Lien. The lien or claim against a or Lot for unpaid Assessments or charges levied by the Association pursuant to this Declaration shall be subordinate to the First Mortgage affecting such or Lot, and the First Mortgagee thereunder that comes into possession of or that obtains title to the or Lot shall take the same free of such lien or claim for unpaid Assessment or charges, but only to the extent of Assessments or charges that accrue prior to foreclosure of the First Mortgage, exercise of a power of sale available thereunder, or taking of a Deed or assignment in lieu of foreclosure. No assessment, charge, lien, or claim that is described in the preceding sentence as being subordinate to a First Mortgage or as not to burden a First Mortgagee that comes into possession or which obtains title shall be collected or enforced by the Association from or against a First Mortgagee, a successor in title to a First Mortgagee, or the or Lot affected or previously affected by the First Mortgage concerned.

17.4. Payment of Taxes. In the event any taxes or other charges that may or have become a lien on the Common Areas are not timely paid, or in the event the required hazard insurance described in Article 13.2 lapses, is not maintained, or the premiums therefor are not paid when due, any First Mortgagee or any combination of First Mortgagees may jointly or singly, pay such taxes or premiums or secure such insurance. Any First Mortgagee that expends funds for any of such purposes shall be entitled to immediate reimbursement therefor from the Association.

17.5. Priority. No provision of this Declaration or the Articles gives or may give an Owner or any other party priority over any rights of Mortgagees pursuant to their respective Mortgages in the case of a distribution to Owners of insurance proceeds or condemnation awards for loss to or taking of all or any part of the Lots, Parcels or the Common Areas.

ARTICLE 18
TERM; AMENDMENTS; TERMINATION

18.1 Amendments by Declarant. So long as the Declarant owns one or more Lots in the Project or any part of the Additional Land, the Declaration and the Plat may be amended or supplemented solely by the Declarant without any additional approval required. In addition, no other amendment shall be valid or enforceable without the Declarant's prior written consent so long as Declarant owns one or more Lots in the Project or any part of the Additional Land.

18.2 Amendments by Association. After any and all Additional Land has been annexed into the Project, and after all of Declarant's Lots have been sold to third parties, this Declaration and the Plat may

be amended upon the affirmative vote of at least sixty-seven percent (67%) of the Allocated Interests of the Association. No meeting shall be required for an amendment if the required vote for approval is obtained by written consent or ballot. Any amendment(s) shall be effective upon recordation in the office of the Weber Recorder. In such instrument, the Board shall certify that the vote required by this Article for amendment has occurred. If a Lot is owned by more than one Owner, the vote of any one Owner shall be sufficient to constitute approval for that Lot under this Article. If a Lot is owned by an entity or trust, the vote of any one officer, trustee, or agent of the entity shall be sufficient to constitute approval for that Lot under this Article. No acknowledgment of any signature used for voting shall be required. Notwithstanding, the foregoing, the Members' authority to amend Articles 19 and 20 of this Declaration is subject to the amendment restrictions set forth therein, and any amendment purporting to modify the provisions of Articles 19 and 20 shall be null and void unless such amendment is in compliance with the amendment provisions and restrictions therein.

18.3 Changes to Plat or Boundaries of the Community. During the Control Period, the Declarant may unilaterally adopt an amended Plat, supplemental Plat, correction to the Plat, or boundary agreement related to any boundary in or around the Project, including any boundary to any Lot or Lots. Following the Control Period, the Association may adopt an amended Plat, supplemental Plat, correction to the Plat, or boundary agreement related to any boundary in or around the Project, including any boundary to any Lot or Lots upon the approval by vote of sixty-seven percent (67%) of Owners in the same manner as required to amend this Declaration. Any such Plat may make material changes to the existing or prior Plat including deleting, adding, or modifying Common Area, or other changes in the layout of the Project. If any such amendment affects any boundary of a Lot, that Owner of the modified Lot must consent in writing. If the approval required herein is obtained, each and every Owner: (1) shall sign, consent to, and execute any further documents required for the finalization, recording, and/or governmental approval of any such document regardless of whether they approved of or consented to the change in the Plat, (2) grants the Association power of attorney to sign necessary documents on each Owner's behalf as necessary for the agreement, amendment, or correction, and (3) consents that the president of the Association, on behalf of the Association and its Board, has the authority to execute any such amended Plat, supplemental Plat, or correction to the Plat on behalf of the Association and all Lot Owners in the Project.

ARTICLE 19
DECLARANT'S RIGHTS

19.1 Improvements. Declarant hereby reserves the right, without obligation, to construct:

19.1.1 Any Improvements shown on the Plat or that Declarant elects to include within the Project;

19.1.2 Any buildings, Dwellings, or structures upon all or any portion of any additional land added to the Project; and

19.1.3 Any other buildings, structures, or improvements that Declarant desires to construct on the Project, or any other real estate owned by Declarant, regardless of whether the same ever becomes part of the Project.

19.2 Expandable Project. The Declarant reserves the right and option to expand the Project by the annexation of Additional Land, or to contract the Project by the withdrawal of currently encumbered land, in accordance with the provisions of this Article.

19.2.1 The Project may be expanded by the addition of other real property designated by Declarant, such real property or portions thereof where applicable being referred to as "Additional Land".

19.2.2 Expansion or contraction of the Project by the Declarant is without limitation, except as set forth in this Article, and shall be effective without prior approval of the Association or any Owner.

19.2.3 Declarant's right to expand or contract the Project shall not expire until the Declarant elects in writing to not add Additional Land to the Project or the Control Period ends.

19.2.4 Additional Land may be added or withdrawn in total or in part, in any order, by using any procedure or manner as Declarant may determine.

To submit or withdraw Additional Land to or from the Project, the Declarant shall record a Supplemental Declaration in the office of the Salt Lake County Recorder setting forth that an expansion or contraction of the Project has occurred. Such Supplemental Declaration shall include: (a) a description of the Additional Land added or withdrawn from the Project; and (b) shall reference this Declaration and state that the provisions of this Declaration apply to the Additional Land, or that the Additional Land is no longer subject to the provisions of this Declaration.

19.3 Special Declarant Rights. Special Declarant Rights are those rights reserved for the benefit of the Declarant in this Declaration and the Governing Documents and shall include, among others, and regardless of anything in the Declaration to the contrary, the following rights which shall remain in effect for the entire Control Period, or for the maximum period allowed by law:

19.3.1 the right to maintain sales offices, model Dwellings, and signs advertising the Community or any Dwelling at any location in the Project;

19.3.2 the right to use easements throughout the Common Areas as set forth in this Declaration;

19.3.3 the right to dedicate the roads and streets within the Project for and to public use, to grant road easements with respect thereto, and to allow such street or road to be used by owners of adjacent land;

19.3.4 the right to transfer Common Areas, including parks, trails, open space or other real property to the local government or municipality, including the dedication of Common Areas as Open Space, which from the time of such dedication shall be held in a perpetual conservation easement. No Open Space may be used for individual or personal use, off-highway vehicle use, unauthorized camping, storage, parking, littering, dumping or any kind or other unauthorized use or activity.

19.3.5 the right to designate parcels for religious use and convey title to those properties to religious institutions.

19.3.6 the right to convert any part of the Project to a different regime of residential or commercial ownership;

19.3.7 the right to create or designate additional Common Area or Limited Common Area within the Project;

19.3.8 the exclusive right to act as the Board of Directors, or appoint or remove Board members during the Control Period;

19.3.9 unless expressly and specifically bound by a provision of the Governing Documents, Declarant shall be exempt from the provisions of the Governing Documents;

19.3.10 the right to set all Assessments for the Association including Regular, Special, Individual and Service Area Assessments;

19.3.11 the right to set all fines and fees for the Association including but not limited to collection fees, reinvestment fees, architectural review fees, and fines for violations of Association Rules;

19.3.12 the right to withdraw land from the Community at any time during the Control Period;

19.3.13 the exclusive right to amend the Declaration, Bylaws, Plat and Rules of the Association without approval from any Members;

19.3.14 the right to create, amend, change, or modify any Plat, subject to necessary approvals from any applicable municipality or government agency;

19.3.15 the right to create Service Areas and assign Lots thereto;

19.3.16 the right to exert any right allowed to the Board or the Association pursuant to the Act and this Declaration.

19.3.17 the right to make and adopt Association Rules without being subject to the requirements of Utah Code § 57-8a-217; and

19.3.18 pursuant to Utah Code § 57-8a-211(10), the provisions of Utah Code § 57-8a-211(2) through (9), shall not apply or have any effect during the Control Period, and the Declarant shall have no duty whatsoever to obtain a Reserve Analysis, or to fund any Reserve Fund during the Control Period.

19.4 Exercising Special Declarant Rights. Declarant may exercise the Special Declarant Rights at any time prior to the expiration of the Control Period. Declarant may exercise its Special Declarant Rights in any order, and no assurance is given as to the order in which Declarant will exercise them. If Declarant exercises any Special Declarant Right with respect to any portion of the Project, Declarant may, but is not obligated to, exercise that Special Declarant Right with respect to any other portion of the Project. Notwithstanding anything to the contrary contained in this Declaration, Declarant may exercise any Special Declarant Right described in this Article and any other right reserved to the Declarant in this Declaration, without the consent of the Association or any of the Owners.

19.5 Interference with Special Declarant Rights. Neither the Association nor any Owner may take any action or adopt any Rule that interferes with or diminishes any Special Declarant right contained in this Declaration without Declarant's prior written consent. Any action taken in violation of this Article shall be null and void and have no force or effect,

19.6 Limitation on Improvements by Association. Until the expiration of the Control Period, neither the Association nor the Board shall, without the written consent of Declarant, make any Improvement to or alteration in any of the Common Area created or constructed by Declarant, other than such repairs, replacements, or similar matters as may be necessary to properly maintain the Common Area as originally constructed or created by Declarant or its authorized builders.

19.7 Transfer of Declarant Rights. The Declarant may transfer, convey, or assign its rights created or reserved under this Declaration to any Person in whole or in part. The Declarant's successor shall enjoy any and all Declarant rights set forth in the Declaration regardless of whether such rights are stated to be transferable. All references in the Governing Documents to Declarant shall equally apply to its successor, A contract transferring a Declarant's rights may, but shall not be required to, be recorded in the office of the Salt Lake County Recorder.

19.8 Changes by Declarant. Nothing contained in this Declaration shall be deemed to affect or limit in any way whatsoever the right of the Declarant, its successors or assigns, to sell or to change the location, design, method of construction, grade, elevation, or any other part or feature of a Lot prior to the contracting for the conveyance of the Lot to a purchaser.

19.9 Voting. During the Control Period, any matter voted upon by the Owners shall not become effective unless the matter is approved in writing by the Declarant.

19.10 Easements Reserved to Declarant.

19.10.1 The Declarant reserves unto itself and its successors and assigns, non-exclusive easements and rights of way over those strips or parcels of land designated or to be designated on the Plat as "Public Utility Easement," or otherwise designated as an easement area over any road or Common Area on the Project, and over those strips of land running along the front, rear, side and other Lot lines of each Lot shown on the Plat. The Declarant reserves unto itself and its successors and assigns, an easement for the installation, construction, maintenance, reconstruction and repair of public and private utilities to serve the Project and the Lots therein, including but not limited to the mains, conduits, lines, meters and other facilities for water, storm sewer, sanitary sewer, gas, electric, telephone, cable television, and other public or private services or utilities deemed by Declarant necessary or advisable to provide service to any Lot, or in the area or on the area in which the same is located.

19.10.2 The Declarant reserves unto itself and its successors and assigns, an easement(s) granting the privilege of entering upon the Common Areas for such purposes and making openings and excavations thereon, which openings and excavations shall be restored in a reasonable period of time, and for such alterations of the contour of the land as may be necessary or desirable to affect such purposes.

19.10.3 The Declarant reserves unto itself and its successors and assigns, a non-exclusive easement and right-of-way in, through, over and across the Common Area for the storage of building supplies and materials, parking of construction vehicles, erection of temporary structures, trailers, improvements or signs necessary or convenient to the development of the Project, and for all other purposes reasonably related to the completion of construction and development of the Project and the provision of utility services, and related services and facilities.

19.10.4 The Declarant reserves unto itself and its successors and assigns, the right to dedicate all of said roads, streets, alleys, rights of way, or easements, including easements in the areas designated as "open space" and storm water management reservation, to public use all as shown on the Plat. No road, street, avenue, alley, right of way or easement shall be laid out or constructed through or across any Lot or Lots in the Project except as set forth in this Declaration, or as laid down and shown on the Plat, without the prior written approval of the Declarant. Owners acknowledge, agree and consent that activities related to the control of storm water or floods may occur on any Common Area at any time.

19.10.5 Declarant further reserves unto itself and its successors and assigns, the right at or after the time of grading of any street or any part thereof for any purpose, to enter upon any abutting Lot and grade a portion of such Lot adjacent to such street, provided such grading does not materially interfere with the use or occupancy of any structure built on such Lot, but Declarant shall not be under any obligation or duty to do such grading or to maintain any slope.

19.11 No Modification of Declarant Rights. Any Declarant Rights in the Governing Documents, and specifically in this Article, shall not be substantively or procedurally altered without the written consent of the Declarant until at least six (6) years have passed after the Control Period has ended, at which time the Declarant's approval shall no longer be required. Any document or amendment attempted without obtaining proper consent shall be void ab initio to the extent it attempts to alter the rights of the Declarant or any provision of this Article without the consent of the Declarant.

19.12 Trademark Holders' Exclusive Use of Ben Lomond View Marks.

19.12.1 Declarant, its affiliates or subsidiaries ("Trademark Holders") are the owners of all rights in the "Ben Lomond Views" name and trademark ("Trademarks"), including but not limited to all rights to Trademarks created in connection with or related to the Community, and any variant or combination of the Trademarks exclusively determined by the Trademark Holders to be confusingly similar to the Trademarks or the "Ben Lomond Views" name (collectively, with the Trademarks, "Marks"). Neither the Association nor the Owners have any license to use or other interest in the Marks; provided, however, the Association and the Owners may identify the Community as the "Ben Lomond Views" until the Trademark Holders, in their sole and exclusive discretion, determine otherwise. In the event the Trademark Holders, in their sole and exclusive discretion, provide written notice to the Association (which notice shall be deemed to be notice to each Owner of any interest in the Community, or portion thereof or interest therein) that it shall no longer be permitted to use the name "Ben Lomond Views" to identify the Community, the Association and each Owner shall immediately take steps to cease all use of all Marks identified in Trademark Holders' notice to identify the Community, and shall:

19.12.1.1 immediately remove all signs containing any and all Marks from the Community, and from any off-site location to the extent the sign refers to the Community contemplated herein;

19.12.1.2 immediately destroy all stationery, descriptive literature or printed or written matter bearing any and all Marks;

19.12.1.3 immediately cease and desist from using any and all Marks (or any other variations thereof) orally or in writing in referring to the Association and/or the Community; and

19.12.1.4 take immediate action to effect changes to the Community Documents reflecting any and all Marks to eliminate the use of such Marks as soon as possible, but in any event, within three (3) months.

19.12.2 The provisions of this Article 19.12 may be enforced by any remedy at law or equity, including mandatory and/or prohibitory injunctions, and by accepting a deed of conveyance in which this Declaration is deemed to be incorporated, each Owner hereby agrees and acknowledges that in the event of non-performance of any of the above-described restrictions, Trademark Holders' remedies at law shall be deemed inadequate to enforce the terms of this Article 19.12.

19.12.3 Notwithstanding any provision of this Declaration to the contrary, this Article 19.12, addressing Trademark Rights, shall not be amended without the written consent of the Trademark Holders, which consent may be withheld for any reason in the Trademark Holders' sole and exclusive discretion,

19.13 Amendment. Notwithstanding any provision of this Declaration to the contrary, this Article 19 may not be amended without Declarant's approval, provided, however, the rights contained in this Article 19 shall terminate upon the earlier of (a) twenty-five (25) years from the date this Declaration is Recorded, or (b) upon Recording by Declarant of a written statement that all sales activity has ceased or that Declarant is voluntarily relinquishing such rights.

ARTICLE 20
DISPUTE RESOLUTION

20.1 Alternative Dispute Resolution Prior to Litigation.

20.1.1 Bound Parties. The Declarant, the Association, the Owners, (and the officers, directors, managers, members, employees, representatives, agents, successors and assigns of any of the foregoing), any other person subject to this Declaration, and any other person not otherwise subject to this Declaration who agrees to submit to this Article (collectively, "Bound Parties"), agree that it is in the best interest of all Bound Parties to encourage the amicable resolution of Claims without the emotional and financial costs of litigation or the toll or market taint such litigation can have on the value of the Project and/or the Lots that may be involved or impacted. Accordingly, each Bound Party agrees not to file suit in any court with respect to a Claim defined in subsections (b) and (c), unless and until it has first submitted such Claim to the alternative dispute resolution procedures set forth in Article 20.2 in a good faith effort to resolve such Claim.

20.1.2 Claims. As used in this Article, the term "Claim" means any claim, grievance, or dispute arising out of or relating to:

(a) the interpretation, application, or enforcement of the Governing Documents;

(b) the rights, obligations, and duties of any Bound Party under the Governing Documents; or

(c) the design or construction of improvements on the Project, other than matters of aesthetic judgment to be determined by the Association or DRC under the Design Guidelines and other provisions hereof, which shall not be subject to review and shall not be subject to this Article.

20.1.3 Exclusion from Definition of Claims. The following shall not be considered to be "Claims" subject to the pre-litigation requirements under Article unless all Parties to the matter otherwise agree to submit the matter to the procedures set forth in Article 20.2:

(a) any suit by the Association to collect assessments or other amounts due from any Owner;

(b) any suit by the Association to obtain a temporary restraining order (or emergency equitable relief) and such ancillary relief as the court may deem necessary in order to maintain the status quo and preserve the Association's ability to enforce the provisions of Article 9 of this Declaration (relating to compliance with Design Guidelines);

(c) any suit that does not include the Declarant, any affiliate of the Declarant, or the Association as a party, if such suit asserts a Claim that would constitute a cause of action independent of the Governing Documents;

(d) any dispute that affects the material rights or obligations of a party who is not a Bound Party and has not agreed to submit to the procedures set forth in Article 20.2;

(e) any suit as to which any applicable statute of limitations would expire within 180 days of giving the Notice required by Article 20.2.1, unless the party or parties against whom the Claim is made agree to toll, or extend, the Claim's statute of limitations to comply with this Article;

(f) any suit or dispute between: (a) the Declarant or its affiliates and a builder, developer, contractor(s), subcontractor(s), or any other party contracted by Declarant or its affiliate in connection with the development of the Project; or (b) the Declarant (or its affiliates) and a builder (or its affiliates) contracting with Declarant; and

(g) any suit or dispute involving a governmental entity as a party.

20.2 Pre-Litigation Dispute Resolution Procedures. The Alternative Dispute Resolution Procedures applicable to Claims are as follows:

20.2.1 Notice. The Bound Party asserting a Claim ("Claimant") against another Bound Party ("Respondent") shall give written notice ("Notice") by mail or personal delivery to each Respondent and to the Board, stating plainly and concisely:

(a) the nature of the Claim, including the persons involved and the Respondent's role in the Claim;

(b) the legal basis of the Claim (i.e., the specific authority out of which the Claim arises);

(c) the Claimant's proposed resolution or remedy;

(d) that the person alleged to be responsible for the acts giving rise to the Claim shall have a reasonable period (not less than three (3) months or more than six (6) months, subject to section 20.2.2 below) to cure or resolve the Claim; and

(e) the Claimant's desire to meet with the Respondent to discuss, in good faith, ways to resolve the Claim.

20.2.2 Right to Cure. For any Claim arising from a dispute over the construction of improvements within the Project, the Claimant shall provide Respondent six (6) months to rectify alter, or fix the claimed defect(s) in the improvements. The expiration of this six-month cure period shall be a prerequisite to Claimant's ability to initiate litigation as permitted under Article 20.3 below. For all Claims involving alleged defects in construction, the negotiation, mediation, and settlement requirements shall remain in effect during the cure period, however, the mediation deadline set forth in subsection (d) below shall be extended to expire on the same date the cure period expires.

20.2.3 Negotiation, The Claimant and Respondent shall make every reasonable effort to meet in person and confer for the purpose of resolving the Claim by good faith negotiation. If requested in writing, accompanied by a copy of the Notice, the Board may appoint a representative to assist the parties in negotiating a resolution of the Claim.

20.2.4 Mediation. If the parties have not resolved the Claim through negotiation within 30 days of the date of the Notice (or within such other agreed upon period), the Claimant shall have 30 additional days to submit the Claim to mediation with an individual or entity designated by the Association (if the Association is not a party to the Claim) or to an independent mediator providing dispute resolution services predominately in Utah. Each Bound Party shall present the mediator with a written summary of the Claim or will otherwise comply with the mediator's proscribed procedures and requirements for mediating claims.

20.2.5 Waiver of Claim for Failure to Appear or Participate. If the Claimant does not submit the Claim to mediation within such time or does not appear for and participate in good faith in the mediation when scheduled, the Claimant shall be deemed to have waived the Claim, and the Respondent shall be relieved of any and all liability to the Claimant (but not third parties) on account of such Claim.

20.2.6 Termination of Mediation Proceedings. If the parties do not settle the Claim within 30 days after submission of the matter to mediation, or within such time as determined reasonable by the mediator, the mediator shall issue a notice of termination of the mediation proceedings indicating that the parties are at an impasse and the date that mediation was terminated. The Claimant shall thereafter be entitled to file suit or to initiate administrative proceedings on the Claim, as appropriate.

20.2.7 Costs of Mediation. Each Bound Party shall bear its own costs of the mediation, including attorney fees, and each Party shall pay an equal share of the mediator's fees.

20.3 Settlement. Any Claim settlement achieved through negotiation or mediation shall be documented in writing and signed by the Parties. If any Party thereafter fails to abide by the terms of such agreement, then any other party may file suit or initiate such proceedings as are necessary to enforce such agreement without the need to comply again with the procedures set forth in this Article. In such event, the party taking action to enforce the agreement or award shall, upon prevailing, be entitled to recover from the non-complying party (or if more than one non-complying party, from all such parties in equal proportions) all costs incurred in enforcing such agreement or award, including, without limitation, attorney fees and court costs.

20.4 Initiation of Litigation by Association. The requirements of this Article are intended to be in addition to those requirements set forth in Section 57-8a-229 of the Act. After expiration of the Control Period the Association may not bring a legal action against the Declarant, a Board of Directors, an employee, an independent contractor, an agent of the Declarant, or the previous Board of Directors related to the Control Period unless the Right to Cure period set forth in Article 20.2.2 above has expired and initiation of legal action is approved in advance at a meeting by Owners holding at least 51% of the total Allocated Interests of the Association.

20.4.1 At least ten (10) days prior to any meeting of the Owners to consider possible legal action, and to assure an informed vote, the Association shall have furnished to each Owner a written notice stating least the following information:

(a) that the Association is contemplating legal action;

(b) that the Association has satisfied the requirements under Article 20.2 to pursue negotiation and mediation to resolve the dispute that is the basis of the Claim and proposed legal action.

(c) the percentage vote required for approval of the litigation;

(d) the date, time, and location of the Member meeting scheduled to discuss the litigation or to vote on the approval of the litigation;

(e) a description of the claims that the Association desires to pursue in sufficient detail to permit each Member to reach an informed decision on the litigation matter; and

(f) A written report from an attorney licensed to practice in Utah, which provides an assessment of:

(i) The likelihood that the legal action will succeed;

(ii) The likely amount in controversy in the legal action;

(iii) The projected and estimated cost of resolving the legal action to the Association's satisfaction; and

(iv) The likely effect the stigma of a legal action will have on value or on an Owner's ability to market for sale, or a prospective Lot buyer's ability to obtain financing for, a Lot due to a pending legal action.

In providing this report, the attorney shall obtain and rely on reports and assessments from experts in their field such as construction, real property, sales, or any other relevant factor in the contemplated litigation.

Owners may be represented at any meeting to discuss or vote upon any potential legal action by a proxy specifically assigned for the purpose of voting to approve or deny the proposed legal action at the meeting. Any such proxy shall not be valid unless the proxy is notarized with

each Owner certifying that they have received and reviewed the information required by under this Article 20.4.

20.4.2 Prior to initiating any authorized legal action in which the amount in controversy is greater than $25,000.00, the Association shall allocate an amount equal to 25% of the costs estimated to resolve the Claim, not including attorney fees, and shall place the funds thus allocated in a trust account that the Association may only use to pay the costs to resolve the Claim.

20.5 Exceptions to Prelitigation Requirements. Notwithstanding the foregoing, the procedures and approvals required in the preceding 20.1-20.4 shall not be required for actions or proceedings:

(a) initiated by Declarant during the Control Period on behalf of the Association;

(b) initiated to enforce the provisions of this Declaration, including collection of assessments and foreclosure of liens;

(c) initiated to challenge ad valorem taxation or condemnation proceedings (including bringing an action for inverse condemnation);

(d) initiated against any contractor, vendor, or supplier of goods or services arising out of a contract for services or supplies; or

(e) to defend claims filed against the Association or to assert counterclaims in proceedings instituted against it.

20.6 Strict Compliance. Any post-turnover litigation involving the Bound Parties shall strictly comply with each of the provisions in this Article. The Bound Parties hereby covenant, stipulate, and agree that in the event the Bound Parties fail to satisfy the prerequisites set forth herein, the non-compliant Party will indemnify, defend, hold harmless, and exculpate the other Bound Party to the fullest extent permissible by law, and the non-breaching Bound Party shall be entitled to recover any and all attorney fees and costs expended as a result of enforcing this Article, which fees and costs may include, without limitation, pre-litigation attorney fees, costs incurred in connection with investigation of potential claims, including expert and consultant fees, testing fees, contractor fees, and insurance deductibles. If any claims or actions falling within the scope of this Article are filed without satisfying all of the requirements set forth above, such claims or actions shall be dismissed without prejudice and shall not be re-filed unless and until all such requirements have been satisfied.

20.7 Owner Warranties. The Declarant may provide certain warranties to the Owners related to a Lot purchased. The first Owner of a Lot to whom any warranty is issued, or with whom a legal warranty arises, and only that Owner, shall have the right directly to seek or enforce performance from the Declarant, by legal action or otherwise, of any terms of the warranty, and only consistent with the warranty itself. The Association shall have no right to seek the performance of or take assignment of any rights in any warranties against the Declarant, and the Owner shall have no right to assign any rights of any kind to the Association related to pursuing litigation against the Declarant.

20.8 Developers. Declarant shall not be considered the developer or builder of any Dwelling or building constructed within the Ben Lomond Views Community unless the Declarant explicitly assumes and performs construction duties on the Dwelling or building.

20.9 Actions Relating to Common Areas. Unless specifically set forth in this Declaration, no action may be brought by the Association, its Board of Directors, or its Officers on behalf of an Owner, as its respective interest may appear, with respect to any cause of action relating to the Common Areas and facilities.

20.10 PARTY WAIVER. ALL PARTIES HEREBY AGREE TO RESOLVE ANY CLAIM ACCORDING TO THE PROVISIONS OF THIS ARTICLE AND SUCH PARTIES WAIVE THEIR RESPECTIVE RIGHTS TO PURSUE THE CLAIM IN ANY MANNER OTHER THAN AS PROVIDED IN THIS ARTICLE.

20.11 Amendment. This Article shall not be amended without the written consent of the Declarant for a period of 10 years following the expiration of the Control Period. Any such amendment shall also be approved by a vote of 67% of the Allocated Interests of the Association.

ARTICLE 21
INTERPRETATION, CONSTRUCTION, & APPLICATION

21.1 No Waiver. Failure by the Association or by any Owner to enforce any Term and Condition in any certain instance or on any particular occasion shall not be deemed a waiver of such right of enforcement as to that breach and any such future breach of the same or any other Term and Condition.

21.2 Conflicting Provisions. In the case of any conflict between or among the Governing Documents, the order of priority from the highest to the lowest shall be the Declaration, the Plat, the Articles, the Bylaws, and then the Rules.

21.3 Interpretation of Declaration and Applicability of the Act. The Project shall be governed by the Act, except where (in compliance with the Act) the Association has included specific provisions in this Declaration that legally vary, supersede, or supplement the Act, in which event such specific provisions of this Declaration that are contrary to the Act shall govern the Project to the extent allowed by the Act. In the case of any conflict between this Declaration and the Act, to the extent the Act does not legally allow this Declaration to contain provisions contrary to the Act, the Act shall control, and this Declaration shall be deemed modified accordingly, but only to the extent necessary to come into compliance with the Act.

21.4 Cumulative Remedies. All rights, options, and remedies of the Association and the Owners in the Governing Documents are cumulative, and none shall be exclusive of any other, and the Association and the Owners shall have the right to pursue any one or all of such rights, options, and remedies or any other remedy or relief that may be provided by law simultaneously, consecutively, or alternatively.

21.5 Severability. Invalidation of any one or a portion of the Terms and Conditions by judgment or court order shall in no way affect any other Terms and Conditions, all of which shall remain in full force and effect.

21.6 Construction. The provisions of this Declaration shall be liberally construed to effectuate its purpose of creating a plan for the development of a mixed-use community and for the maintenance of the Project. The article and section headings have been inserted for convenience only and shall not be considered or referred to in resolving questions of interpretation or construction. References in this Declaration to article and section numbers, unless otherwise expressly provided, are to the article and section in this Declaration. To the extent permitted by law, the provisions of the Governing Documents shall not be interpreted for or against or strictly for or against the Declarant, the Association, any Owner, or any other Person subject to their terms.

21.7 Gender and Number. Whenever the context of the Governing Documents requires, the singular shall include the plural, and vice versa, and the masculine shall include the feminine and the neuter, and vice versa.

21.8 Effect of Declaration. This Declaration is made for the purposes set forth in the recitals in this Declaration, and the Association makes no warranties or representations, express or implied, as to the binding effect or enforceability of all or any portion of this Declaration, or as to the compliance of any of

these provisions with public laws, ordinances, regulations, and the like applicable thereto. The Association shall have no liability whatsoever if any Term and Condition is determined to be unenforceable in whole or in part for any reason,

ARTICLE 22
MISCELLANEOUS

22.1 Change of Circumstances. Except as otherwise expressly provided in this Declaration, no change of conditions or circumstances shall operate to extinguish, terminate or modify any of the provisions of this Declaration.

22.2 Rules and Regulations. In addition to the right to adopt the Rules on the matters expressly mentioned elsewhere in this Declaration, the Association (through its Board) shall have the right to adopt rules and regulations with respect to all other aspects of the Association's rights, activities and duties, provided said rules and regulations are not inconsistent with the provisions of this Declaration.

22.3 Declarant's Disclaimer of Representations. Anything to the contrary in this Declaration notwithstanding, and except as otherwise may be expressly set forth on a Plat or other Recorded instrument, Declarant makes no warranties or representations whatsoever that the plans presently envisioned for the complete development of the Community can or will be carried out, or that any land now owned or hereafter acquired by it is or will be subjected to this Declaration, or that any such land (whether or not it has been subjected to this Declaration) is or will be committed to or developed for a particular (or any) use, or if that land is once used for a particular use, such use will continue in effect. -

22.4 References to the Covenants in Deeds. Deeds or any instruments affecting any Lot or any part of the Community may contain the covenants herein set forth by reference to this Declaration; but regardless of whether any such reference is made in any Deed or instrument, each and all of the covenants shall be binding upon the grantee-Owner or other person claiming through any instrument and his or her heirs, executors, administrators, successors and assigns.

22.5 List of Owners and Eligible Members. The Board shall maintain up-to-date records showing: (a) the name of each Person who is an Owner, the address of such Person, and the or Lot that is owned by him or her; (b) the name of each person or entity who is an Eligible Mortgagee, the address of such person or entity and the or Lot that is encumbered by the Mortgage held by such person or entity; and (c) the name of each person or entity who is an insurer or governmental guarantor together with the address of such-person or entity. In the event of any transfer of a fee or undivided fee interest in a or Lot, either the transferor or transferee shall furnish the Board with evidence establishing that the transfer has occurred and that the Deed or other instrument accomplishing the transfer is of Record. The Board may for all purposes act and rely on the information concerning Owners and or Lot ownership that is thus acquired by it or, at its option, the Board may act and rely on current ownership information respecting any Lot, Parcel or Lots or Parcels that is obtained from the office of the County Recorder of Weber County, Utah, as applicable. The address of an Owner shall be deemed to be the address of the or Lot owned by such person unless the Board is otherwise advised. The list of Owners shall be made available by the Board to any Owner for noncommercial purposes upon such Owner's written request and such Owner's payment of any copying charges. The Association may, as a condition to permitting a Member to inspect the Membership register or to its furnishing information from the register, require that the Member agree in writing not to use, or allow the use of, information from the membership register for commercial or other purposes not reasonably related to the regular business of the Association and the Member's interest in the Association.

22.6 General Obligations. Each Owner shall enjoy and be subject to all rights and duties assigned to Owners pursuant to this Declaration. With respect to unsold Lots and Parcels, and unless

otherwise provided herein, the Declarant shall enjoy the same rights and assumes the same duties with respect to each unsold Lot and Parcel.

22.9. Rights of Action. The Association and any aggrieved Owner shall have a right of action against Owners who fail to comply with the provisions of this Declaration or the decisions of the Association. Owners shall have a similar right of action against the Association.

22.10 Developers. Declarant shall not be considered the developer of any Dwelling or building constructed within the Ben Lomond Views Community unless the Declarant explicitly assumes and performs construction duties on the Dwelling or building.

22.11 Attorney Fees. If the Association utilizes legal counsel to enforce any Term and Condition, or after an Owner communicates or demonstrates an intent not to comply with a Term and Condition, the Association may assess all reasonable attorney fees and costs associated with such enforcement to the Owner as an Individual Assessment, regardless of whether a lawsuit is initiated or not. The term "costs" as used in this Article shall include all costs including but not limited to copying costs, deposition costs, expert witness fees, investigative costs, service costs, and filing fees paid to courts. "Costs" is specifically defined in this Declaration to be broader and to include costs that are not included in costs as the term is used in the Utah Rules of Civil Procedure.

22.12. Successors and Assigns of Declarant. Any reference in this Declaration to Declarant shall include any successors or assigns of Declarant's rights and powers hereunder. Declarant may assign any all of such rights by Recording an assignment of Declarant's rights.

22.13. Notices. Any notice permitted or required to be delivered as provided herein may be delivered either personally or by mail. If delivery is made by mail, it shall be deemed to have been delivered twenty-four (24) hours after a copy of the same has been deposited in the United States mail, postage prepaid, addressed to such person at the address given by that person to the Association for the purpose of service of such notice or to the address of the Lot of such person if no address has been given. Such address may be changed from time to time by notice in writing received by the Association. Notice to the Board or to the Design Review Committee shall also be delivered or mailed to the Declarant or such other address as the Board may designate after the end of Declarant's control of the Board.

22.14 Consent, Power of Attorney, and Waiver. By acceptance of a deed, lease, or other conveyance of an interest in a Lot, each Owner or Occupant consents to the rights reserved to the Association in this Declaration, including but not limited to the right to prepare, execute, file, process, and record necessary and appropriate documents and other items to establish and grant easements and to make necessary and appropriate amendments of this Declaration, the Plat, and the Bylaws. By such acceptance, each Owner or Occupant agrees to execute all documents and to do all other things as may be necessary or convenient to effect the same; and such acceptance shall be deemed an appointment of the Association, with full right of substitution, as the attorney-in-fact of such Owner or Occupant to execute such documents and to do such things on such Owner's or Occupant's behalf; and such appointment, being coupled with an interest, shall be irrevocable for the specific period of the Association's reserved rights as set forth in this Declaration and shall not be affected by the disability of any such Owner or Occupant.

22.15. Security. The Association may, but shall not be obligated to, maintain or support certain activities within the Community designed to make the Community safer than it otherwise might be. HOWEVER, NEITHER THE ASSOCIATION, NOR THE DECLARANT SHALL IN ANY WAY BE CONSIDERED INSURERS OR GUARANTORS OF SECURITY FROM CRIMINAL CONDUCT WITHIN OR RELATING TO THE COMMUNITY, AND NEITHER THE ASSOCIATION, NOR THE DECLARANT SHALL BE HELD LIABLE FOR ANY LOSS OR DAMAGE BY REASON OF FAILURE TO PROVIDE ADEQUATE SECURITY OR INEFFECTIVENESS OF SECURITY MEASURES UNDERTAKEN. ALL OWNERS, RESIDENTS, TENANTS, GUESTS AND INVITEES

OF ANY OWNER OR RESIDENT, AS APPLICABLE, ACKNOWLEDGE THAT THE DECLARANT, THE ASSOCIATION AND ITS BOARD OF DIRECTORS AND THE DESIGN REVIEW COMMITTEE DO NOT REPRESENT OR WARRANT THAT ANY FIRE PROTECTION SYSTEM OR BURGLAR ALARM SYSTEM DESIGNATED BY OR INSTALLED ACCORDING TO GUIDELINES ESTABLISHED BY THE DECLARANT OR THE DESIGN REVIEW COMMITTEE MAY NOT BE COMPROMISED OR CIRCUMVENTED, THAT ANY FIRE PROTECTION ORBURGLAR ALARM SYSTEMS WILL PREVENT LOSS BY FIRE, SMOKE, BURGLARY, THEFT, HOLD-UP, OR OTHERWISE NOR THAT FIRE PROTECTION OR BURGLARY ALARM SYSTEMS WILL IN ALL CASES PROVIDE THE DETECTION OR PROTECTION FOR WHICH THE SYSTEM IS DESIGNED OR INTENDED. EACH OWNER, RESIDENT, TENANT, GUEST OR INVITEE OF AN OWNER OR RESIDENT, AS APPLICABLE, ACKNOWLEDGES AND UNDERSTANDS THAT THE DECLARANT, THE ASSOCIATION, ITS BOARD OF DIRECTORS AND DESIGN REVIEW COMMITTEE ARE NOT INSURERS AND THAT EACH OWNER, RESIDENT, TENANT, GUEST AND INVITEE ASSUMES ALL RISKS FOR LOSS OR DAMAGE TO PERSONS, TO DWELLINGS AND TO THE CONTENTS OF DWELLINGS AND FURTHER ACKNOWLEDGES THAT DECLARANT, THE ASSOCIATION, ITS BOARD OF DIRECTORS AND DESIGN REVIEW COMMITTEE HAVE MADE NO REPRESENTATIONS OR WARRANTIES NOR HAS ANY OWNER, RESIDENT, TENANT, GUEST OR INVITEE RELIED UPON ANY REPRESENTATIONS OR WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, RELATIVE TO ANY FIRE AND/OR BURGLAR ALARM SYSTEMS RECOMMENDED OR INSTALLED OR ANY SECURITY MEASURES UNDERTAKEN WITHIN THE COMMUNITY.

22.16 Invalidity. Invalidation of any of the terms hereof, in whole or in part, by judgment or court order shall in any way affect any of the other provisions, all of which shall remain in full force and effect.

22.17 Master Development Agreement All Lots shall be subject to and bound by the Master Development Agreement recorded for the Community, as applicable.

22.18 Fair Housing Accommodations. Notwithstanding anything to the contrary in this Declaration, the Association, upon receipt of a written opinion from its counsel that such action is required, may make or permit reasonable accommodations or modifications to the Project that are otherwise prohibited by the Governing Documents, as required under the Fair Housing Act, as amended, to accommodate a Person with a disability (as defined by Federal law at the time the accommodation is requested). Reasonable accommodations or modifications may include modifications to a Lot, the Common Area and Facilities, or the buildings, or deviations from provision of the Governing Documents. Any such modification and accommodation made under this Article shall not act as a waiver of the provisions of the Governing Documents with regard to any other Person or Owner.

22.19 Effective Date. This Declaration and any amendment hereto, shall take effect upon its filing in the office of the Weber County Recorder, concurrent with the recordation of the Community Plat.

IN WITNESS WHEREOF, the Declarant has executed this Declaration as of the day first above written.

DECLARANT:

BLD INVESTMENT, LLC,
a Utah limited liability company

DRAFT 06-15-21

By:_____
Douglas E. Palermo
Its Manager

STATE of UTAH)
ss:
COUNTY OF _____

On this_____ day of _____, 2021, personally appeared before me, the undersigned Notary Public, Douglas E. Palermo who, by me being duly sworn, did affirm that he is an authorized representative of BLD Investment, LCC, and that the foregoing instrument is signed on behalf of said company and executed with all necessary authority.

Notary Public: _____

(SEAL) Residing at _____

My Commission Expires: _____

DRAFT 06-15-21

EXHIBIT “A”

BEN LOMOND VIEWS REAL PROPERTY DESCRIPTION

DRAFT 06-15-21

EXHIBIT “B”

MILLENNIUM PARK EASEMENT AGREEMENT

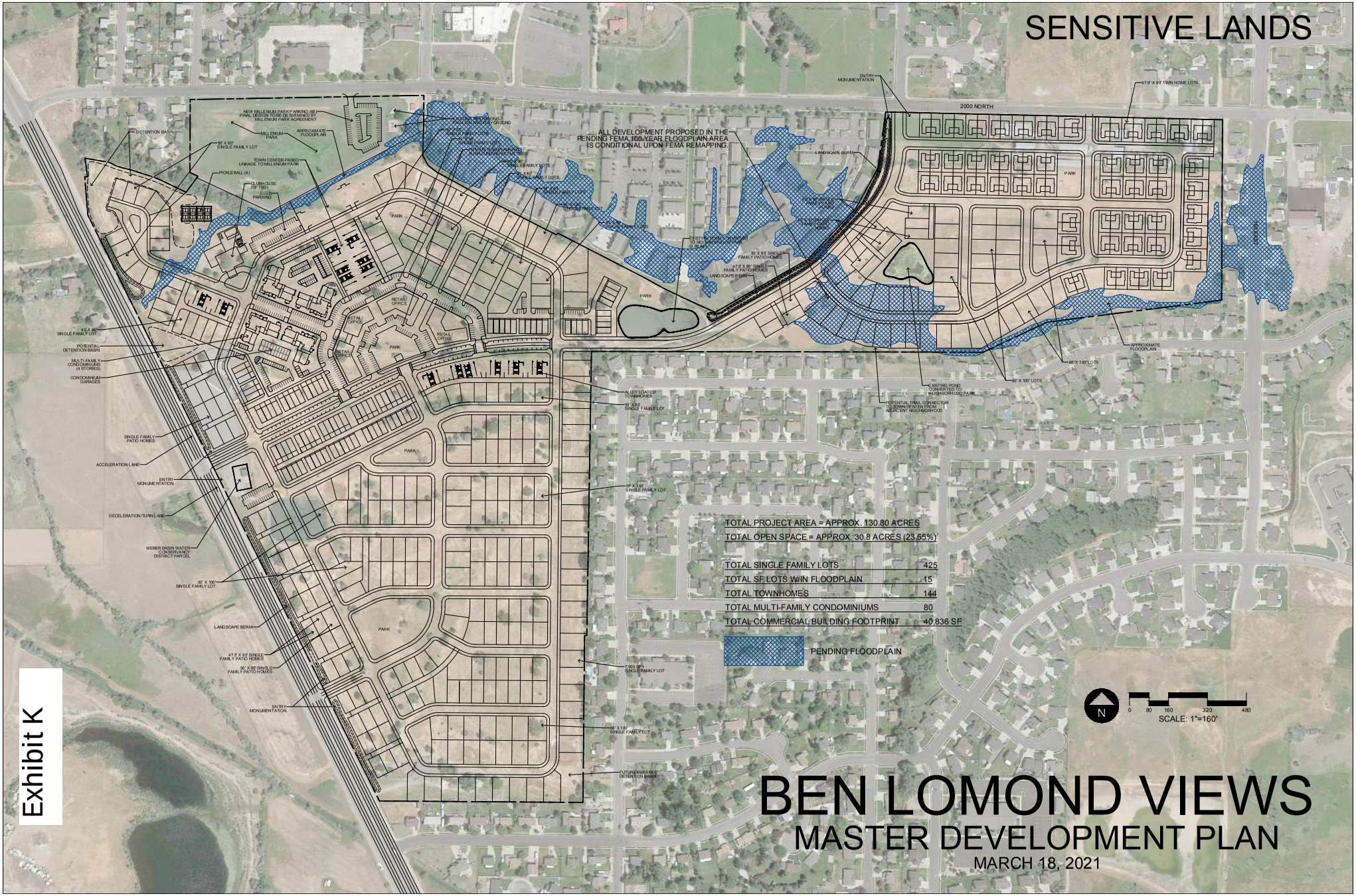


Exhibit K

BEN LOMOND VIEWS

MASTER DEVELOPMENT PLAN

MARCH 18, 2021

Exhibit L: Geotechnical Report

Exhibit L-1

Geotechnical Report

Enclosed as Exhibit L-2, is a preliminary Geotechnical Report prepared by Wood Environment & Infrastructure Solutions, Inc. Immediately after the Effective Date of this MDA we will proceed to complete a geotechnical investigation that complies with the requirements of the Harrisville City Public Works Standard, dated March 2021 (Section 2.04) and we will provide a copy of the report for review by City staff.

Exhibit L-2

Wood Environment & Infrastructure Solutions, Inc.
9865 S 500 W
Sandy, UT, 84070
T: 801-999-2000
www.woodplc.com

June 25, 2019
Wood Project No. 1981705421

Ben Lomond Development, LLC
51 West Center Street #644
Orem, Utah 84057

Attn: Mr. William Scott

RE: Geotechnical Exploration
Ben Lomond Development
Harrisville, Utah

Mr. Scott:

Wood Environment & Infrastructure Solutions, Inc. (Wood) submits this Geotechnical Exploration for the above referenced project. The purpose of this exploration was to provide a general characterization of the subsurface soil conditions and recommendations pertaining to site development and roadway construction for the proposed development of residential and commercial construction on an approximate 120-acre site in Harrisville, Utah.

Our scope of work included subsurface explorations, laboratory testing, and report preparation. This report has been prepared for the exclusive use of Ben Lomond Development, and their consultants, for specific application to this project, in accordance with generally accepted geotechnical engineering practice.

Should any questions arise concerning this report, we would be pleased to discuss them with you.

Respectfully submitted,
Wood Environment & Infrastructure Solutions, Inc.

PROFESSIONAL ENGINEER
No.10684079
THOMAS CARL GRUMMON
6/25/19
STATE OF UTAH

Thomas Grummon, P.E.
Geotechnical Engineer

Reviewed by:

Mark J. Breitnauer, P.E.
Senior Engineer

Copies: Addressee (1)

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1.0 INTRODUCTION

This report is exploration of subsurface soils and a geotechnical engineering study made by this firm for the approximate 120-acre Ben Lomond Development in Harrisville, Weber County, Utah. Presented in this report are the results of our background review, field explorations, geotechnical laboratory testing, our conclusions regarding the geotechnical conditions at the site, and our preliminary recommendations for design and earthwork construction of this project. This geotechnical study was performed in accordance with generally accepted geotechnical engineering practices.

We have attached for your review, in ***Appendix A***, important information prepared by the Geoprofessional Business Association (GBA) regarding geotechnical studies of the performed for this project.

2.0 SCOPE OF WORK

The scope of our services for this project included the following items:

1. Initial reconnaissance of the site to document the condition of the site at the time of our exploration. The reconnaissance included noting the type and condition of vegetation, the inclination and direction of site topography, site drainage features, and other particulars about this site which may be pertinent to the study.
2. Locating soil test borings and determining their locations by visual reckoning using recent site aerial photography, and a hand-held global positioning system unit.
3. Drilling and sampling ten (10) test borings to depths of between 25 and 30 feet below the ground surface to determine the stratification and engineering properties of the subsurface soils at select locations. Disturbed split-spoon samples and/or undisturbed Dames & Moore ring samples were obtained from the borings at 5-foot intervals of depth. The Standard Penetration Test (SPT) was conducted while the disturbed split-spoon samples were being collected.
4. Laboratory soils classification tests on selected soil samples to confirm visual soil classification of site soils and to provide pertinent test data to allow estimation of pertinent soil engineering properties.
5. Analysis of site soil and groundwater conditions as they relate to the proposed development.
6. Preparation of this report to document the results of our field and laboratory testing programs, engineering analyses, and geotechnical design recommendations.

3.0 SITE LOCATION AND CONDITIONS

General Information

The investigated site consists of an irregularly shaped parcel of land approximately 120-acres in area located east of Highway 89 and south of 2000 North. Its approximate address is 1800 N Hwy-89, Harrisville, UT 84404. This Parcel is currently the Ben Lomond Gold Course.

Site Conditions and History

The was a public golf course that has ceased operations within the last year. The average topographic gradient slopes generally to the west, however, the site is reasonably flat with surface topography changes of 10-20 feet across the site. The vegetation consists of golf course grass and some tree cover. There are several man-made ponds on the site as well.

Geology

Based on our review of the available geologic literature the site is located within the Basin and Range Province, characterized by extensional normal faulting that creates a series of mountain ranges separated by flat valleys or basins. The site is also below the highest know shoreline of Lake Bonneville, a Late Quaternary large inland lake that has since receded. The site is mapped as sitting on "undifferentiated surficial deposits." The site sits near the valley bottom on the Ogden Valley (Crittenden and Sorensen, 1985). The area is defined as having a "high" liquefaction potential, by mapping done by the Utah Geologic Survey (Jarva, 1994). The site lies approximately 2 miles from the Weber Section of the Wasatch Fault Zone, an active fault zone. The Weber Section's latest known (partial) surface rupture was "probably" 500+/- 300 years ago (USGS, 2004).

4.0 FIELD EXPLORATION

4.1 SUBSURFACE EXPLORATION

Our field exploration program consisted of performing a total of ten (10) auger borings with standard penetration testing (SPT) and Dames and Moore (DM) sampler testing to depths from 25 feet to 31.5 feet below existing ground surface, Table 1. Geotechnical soil boring depths are tabulated below:

Table 1- Boring Depths and Water Levels

Boring Location	Depth (feet)	Water Level (Feet Below Ground Surface)
BL-19-01	25.0	1.5
BL-19-02	20.0	8.5
BL-19-03	25.5	3.0
BL-19-04	20.5	-
BL-19-05	30.5	2.5
BL-19-06	35.5	-
BL-19-07	35.0	-
BL-19-08	31.5	4.0
BL-19-09	26.5	3.0
BL-19-10	16.5	5.0

The test borings were completed using a CME 75 truck-mounted drill rig equipped with 3¼ inch I.D. hollow stem augers. The borings were conducted in accordance with methodology consistent with ASTM International Standard D1586, Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils, and ASTM International Standard D3550, Standard Test Method for Thick Wall, Ring-Lined, Split Barrel, Drive Sampling of Soils. Standard penetration testing and ring-lined sampling were completed at selected intervals in the borings. During the field study, the soils encountered were examined, visually classified and logged. The locations of the borings are graphically depicted on the Boring Location Plan as shown in ***Appendix B***; they were located using a hand-held GPS device and should be considered accurate only to the extent implied by the limitation of the depiction. Results of the field study are presented in ***Appendix B***, which includes a brief description of drilling and sampling equipment and procedures, boring location plan and logs of the test borings.

Simple PVC stand pipe piezometers with open ends and no screens were installed in select borings to facilitate water level measurements. Water levels were measured on June 10th, 2019.

The boring logs and related information included in this report are indicators of subsurface conditions only at the specific locations and times noted, subsurface conditions, including groundwater levels, at other locations on the subject site may differ significantly from conditions, which exist at the sampling locations.

5.0 LABORATORY TESTING

A laboratory testing program was conducted on selected soil samples obtained from the test borings to assist in classification and evaluation of the physical properties of the soils encountered within the project site. Laboratory tests were performed in general accordance with ASTM International standards. The types and methods of laboratory tests performed on the soil samples are outlined in the table below.

Laboratory Test Program	
Test Description	**Test Method**
Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis	ASTM C117/C136
Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass	ASTM D2216
Liquid Limit, Plastic Limit, and Plasticity Index of Soils	ASTM D4318
Moisture and Density Relationships (Proctor Compaction Test)	ASTM D698/1557
Direct Shear Test of Soils Under Consolidated Drained Conditions	ASTM D3080
One Dimensional Consolidation Tests	ASTM D2435
California Bearing Ratio of Laboratory Compacted Soils	ASTM D183

The results of the moisture testing, Atterberg Limits, and Densities (dry unit weights) are shown on the boring logs presented in ***Appendix B***. Particle distribution test results are presented in ***Appendix C***.

The soil encountered during the field study was classified in general accordance with the Unified Soil Classification System. The soil classification symbols appear on the boring logs and are briefly described in ***Appendix B***.

Direct Shear and Consolidation Tests

Direct shear and consolidation tests were performed on selected Dames & Moore ring samples. The results of these tests are provided in ***Appendix C***.

Proctor and California Bearing Ratio Tests

Proctor and California Bearing Ratio tests were performed on bulk samples collected from borehole cuttings. The results of these tests are provided in ***Appendix C***.

6.0 SUBSURFACE SOIL CONDITIONS

The general subsurface conditions encountered during the field exploration conducted May 6 and 7, 2019, are shown on the soil boring logs presented in ***Appendix B***. The lines of stratification shown on the logs are based upon examination of the recovered soil samples and interpretation of the field boring logs and represent the approximate boundaries between the soil types; the actual transitions may be gradual.

As the exploration borings indicate, the soils encountered at the project site generally consist clays (CL, CH) extending from the ground surface to the depths explored (26.5 feet to 31.5 feet). The clay is laminated with layers of silt. The relative consistency of the clay layer was soft to very stiff. Laboratory testing indicates the plasticity of the clays have a liquid limit varying from 39 to 52 with corresponding plasticity indices of 19 to 26. Boring BL-19-04 encountered a firm silt (ML) between 20 feet and 25 feet.

Boring BL-19-01 encountered a poorly graded medium grained sand (SP) at a depth of about 25 feet. The boring was terminated above the planned depth of 31.5 feet due to collapse of the bore hole from heaving sands. Due to the heave an undisturbed SPT sample was unable to be obtained. Boring BL-19-01 was at the lowest elevation of the borings conducted. Although this material was not observed in other borings, this is likely due to the elevations. It would be prudent to assume that this sand underlies the property at some depth below 30'. This area is mapped as having a high liquefaction potential. Depending on the density of the sand in-situ, and due to the fact that it is saturated, it may be liquefiable.

The soil classification symbols shown above and elsewhere herein are derived from ASTM D2487, *Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)* and D2488, *Standard Practice for Description and Identification of Soils (Visual-Manual Procedure).* The descriptions for relative density and firmness are based on grain size and standard penetration tests as detailed in "Terminology Used to Describe the Relative Density, Consistency or Firmness of Soil" in ***Appendix B*** of this report.

6.1 SOIL MOISTURE AND GROUNDWATER CONDITION

Soil observed was generally sub-saturated to saturated. Water levels measured at the site vary from 1.5' bgs to 8.5'bgs and are presented in Table 1 above. Fluctuations in groundwater levels can occur due to variations in precipitation, runoff, water levels in nearby water bodies can also influence the local groundwater table. Seasonal and longer-term groundwater fluctuations should be anticipated with the highest seasonal levels generally occurring during the late spring and summer months.

7.0 SEISMIC CONSIDERATIONS

Based upon the nature of the subsurface materials observed, a seismic site class of E should be used for the design of structures for the proposed project based on Table 1613.5.2 in the 2015 International Building Code (IBC). A summary of the seismic design parameters for the Site are presented in the Table 2 below.

Table 2- Seismic Design Parameters

Site Soil Classification	**D**
Mapped Spectral Response Acceleration at 0.2s Period, S_s	1.483g
Mapped Spectral Response Acceleration at 1s Period, S_1	0.526g
Short Period Site Coefficient at 0.2s, F_a	0.9
Long Period Site Coefficient at 1_s, F_v	2.4
Adjusted Spectral Response Acceleration at 0.2s Period, S_{ms}	1.335g
Adjusted Spectral Response Acceleration at 1s Period, S_{m1}	1.261g
Design Spectral Response Acceleration at 0.2s Period, S_{DS}	0.89g
Design Spectral Response Acceleration at 1s Period, S_{D1}	0.841g

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 GENERAL

The native clays are generally saturated and have low strength and high compressibility. Results of California Bearing Ratio (CBR) tests performed in our laboratory ranged from 1 to 2. Geotechnical recommendations for design and construction of asphalt concrete pavements are presented in the following sections.

8.2 EARTHWORK

8.2.1 Site Preparation

Prior to pavement construction, the subgrade should be evaluated by a qualified soils engineer or engineering geologist. Subgrade soils should scarified to a depth of at least eight inches and compacted to at least 95 percent of the maximum dry density as determined by ASTM D 1557 (Modified Proctor). Any soft or loose areas observed during the subgrade evaluation should be over-excavated to firm undisturbed native soil and backfilled with structural fill. The area should be cleared and grubbed of all vegetation and topsoil. All debris larger than 4"and organic material should be removed from the sub-grade.

8.2.2 Excavations

We anticipate that excavations can be accomplished in the soils using heavy duty excavation equipment. The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's responsible person, as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. All temporary slopes and shoring should conform to local, State, and Federal safety regulations. The contractor is solely responsible for designing a de-watering program for the excavations as well.

8.2.3 Structural Fill

Structural fill refers to fill materials used to support foundations and pavements or any other structural element. Structural fill should be free from debris, vegetation, roots, other unsuitable material, frozen material, and excess moisture. Structural fill should also conform to the gradation and plasticity requirements shown in the Table 3 below.

Table 3 - Structural Fill Material Specifications

Structural Fill	Maximum Particle Size	LL	PI
AASHTO A-1-a through A-4	3 in.	40 max	10 max

Properly documented mass grading fill may be considered structural fill. Undocumented end dumped material is not considered structural fill and must be entirely removed and replaced. Within any landscaping area, non-structural site grading fill may consist of cohesive or granular soils not containing excessive amounts of degradable material.

8.2.4 Fill Placement and Compaction Requirements

Structural fill should be compacted to at least 95 percent of the maximum dry density at a moisture content within plus or minus 3 percent of optimum as determined by ASTM D 1557 (Modified Proctor). Fill in landscaped areas should be compacted to a minimum of 85 percent of the maximum dry density as determined by ASTM D-1557.

Fill should be placed and compacted in lifts. The lift thickness should be appropriate for the type of equipment being used so that the entire lift thickness is compacted to the required level. With heavy compaction equipment, loose lift thickness should be limited to a maximum of 12 inches. Fill compaction should be tested frequently. The contractor should have sufficient testing to verify that compaction methods are adequate to meet compaction requirements.

8.2.5 Utility Trench Backfill

All backfill placed in utility trench excavations within the limits of the buildings and paved areas should consist of sand, sand and gravel, or crushed rock with a maximum size of up to 2-inches and with not more than 15 percent passing the No. 200 sieve (washed analysis). Backfill should be placed in trenches and compacted in lifts no greater than eight inches in compacted thickness. Backfill in areas greater than 10 feet from existing or proposed paved streets or structures (nonstructural areas) should be compacted to a density of not less than 85 percent from the top of pipe bedding to the ground surface. Backfill in areas less than 10 feet from existing or proposed paved streets or structures (structural areas) should be compacted to a density of not less than 90 percent from the top of pipe bedding to about three feet below finished grade. The remaining zone, three feet below finished grade, should be compacted to a density of not less than 95 percent. Final dimensions should be adjusted for pavement section thickness.

8.2.6 Cut and Fill Slopes

Cut and fill slopes should be constructed no steeper than 4H:1V. More rapid grade transitions must be created using earth retention systems, such as conventional retaining walls or mechanically stabilized earth (MSE) walls.

8.3 PAVEMENT

A pavement design memo will be forthcoming with pavement design recommendations. The City of Harrisville's minimum pavement section consists of 3 inches minimum of asphalt and 12 inches minimum of compacted base course. Due to the very low CBR values of the soil the minimum pavement section required by the City of Harrisville will result in a poor performing roadway. A discussion with the client and city will need to be had to determine a minimum Design 18-kip Equivalent Single Axle Load (ESAL) values for the roadways in this development.

9.0 REPORT LIMITATIONS

This report has been prepared to aid the architect and engineer in the design of this project. The scope is limited to the specific project and location described herein, and our description of the project represents our understanding of the significant aspects of the project relevant to the design and construction of pavements. In the event that any changes in the design and location of the roads as outlined in this report are planned, we should be given the opportunity to review the changes and to modify or reaffirm the conclusions and recommendations of this report in writing.

The recommendations presented in this report are based upon a limited number of subsurface samples obtained from ten sampling locations at the site. The samples may not fully indicate the nature and extent of the variations that actually exist between sampling locations. In addition, no environmental evaluation in connection with the site was conducted as part of our scope of work. In the performance of subsurface investigations, specific information is obtained at specific locations at specific times. However, it is acknowledged that variations in soil conditions may exist between explorations. This report does not reflect any variations that may occur between these explorations. The nature and extent of variation may not become evident until construction. If, during construction, subsurface conditions are different from those encountered in the explorations, we should be advised at once so that we can observe and review these conditions and reconsider our recommendations where necessary.

APPENDIX A

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled*. No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be*, and, in general, *if you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed*. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.*

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration.*** Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

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APPENDIX B

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TEST DRILLING EQUIPMENT & PROCEDURES

SAMPLING PROCEDURES - Dynamically driven tube samples are usually obtained at selected intervals in the borings by the ASTM D-1586 procedures. In most cases, 2" O.D.samplers are used to obtain the standard penetration resistance. Undisturbed samples of firmer soil are often obtained with 3" O.D. samplers lined with 2.42" I.D. brass rings. The driving energy is generally recorded as the number of blows of a 140 pound, 30-inch free fall drop hammer required to advance the samplers in 6-inch increments. However, in stratified soil, driving resistance is sometimes recorded in 2 or 3-inch increments so that soil changes and the presence of scattered gravel or cemented layers can be readily detected and the realistic penetration values obtained for consideration in design. These values are expressed in blows per foot on the logs. Undisturbed sampling of softer soil is sometimes performed with thin walled Shelby tubes (ASTM D-1587). Where samples of rock are required, they are obtained in NX diamond core drilling (ASTM D-2113). Tube samples are labeled and placed in watertight containers to maintain field moisture contents for testing. When necessary for testing, larger bulk samples are taken from auger cuttings.

CONTINUOUS PENETRATION TESTS - Continuous penetration tests are performed by driving a 2" O.D. blunt nosed penetrometer adjacent to or in the bottom of borings. The penetrometer is attached to 1-inch O.D. drill rods to provide clearance to minimize side friction so that penetration values are recorded as the number of blows of a 140 pound, 30-inch free fall drop hammer required to advance the penetrometer in one foot increments or less.

BORING RECORDS - Drilling operations are directed by our field engineer or geologist who examines soil recovery and prepares boring logs. Soil is visually classified in accordance with the Unified Soil Classification System (ASTM D-2487), with appropriate group symbols being shown on the logs.



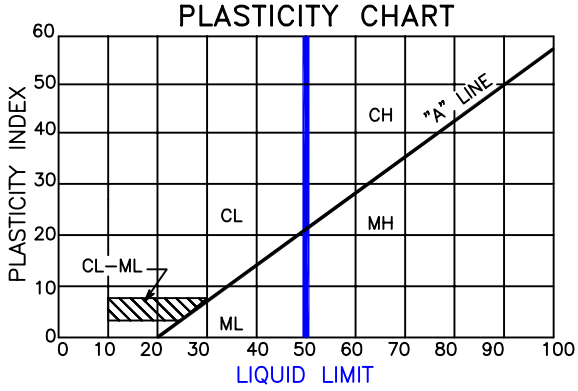
UNIFIED SOIL CLASSIFICATION SYSTEM

Soils are visually classified by the Unified Soil Classification System on the boring logs presented in this report. Grain–size analysis and Atterberg Limits Tests are often performed on selected samples to aid in classification. The classification system is briefly outlined on this chart. For a more detailed description of the system, see "The Unified Soil Classification System", Corp of Engineers, US Army Technical Memorandum No. 3–357 (Revised April 1960) or ASTM Designation: D2487–93T.

MAJOR DIVISIONS				GRAPHIC SYMBOL	GROUP SYMBOL	TYPICAL NAMES
COARSE–GRAINED SOILS (Less than 50% passes No. 200 sieve)	GRAVELS (50% or less of coarse fraction passes No. 4 sieve)	CLEAN GRAVELS (Less than 5% passes No. 200 sieve)			GW	Well graded gravels, gravel–sand mixtures, or sand–gravel–cobble mixtures.
					GP	Poorly graded gravels, gravel–sand mixtures or sand–gravel–cobble mixtures
		GRAVELS WITH FINES (More than 12% passes No. 200 sieve)	"A" Limits plot below "A" line or hatched zone on plasticity chart		GM	Silty gravels, gravel–sand–silt mixtures
			"A" Limits plot above "A" line & hatched zone on plasticity chart		GC	Clayey gravels, gravel–sand–clay mixtures
	SANDS (More than 50% of coarse fraction passes No. 4 sieve)	CLEAN SANDS (Less than 5% passes No. 200 seive)			SW	Well graded sands, gravelly sands
					SP	Poorly graded sands, gravelly sands
		SANDS WITH FINES (More than 12% passes No. 200 sieve)	"A" Limits plot below "A" line or hatched zone on plasticity chart		SM	Silty sands, sand–silt mixtures
			"A" Limits plot above "A" line & hatched zone on plasticity chart		SC	Clayey sands, sand–clay mixtures
FINE–GRAINED SOILS (50% or more passes No. 200 sieve)	SILTS Limits plot below "A" line or hatched zone on plasticity chart	SILTS OF LOW PLASTICITY (Liquid Limit Less Than 50%)			ML	Inorganic silts, clayey silts with slight plasticity
		SILTS OF HIGH PLASTICITY (Liquid Limit More Than 50%)			MH	Inorganic silts, micaceous or diatomaceous silty soils, elastic silts
	CLAYS Limits plot above "A" line & hatched zone on plasticity chart	CLAYS OF LOW PLASTICITY (Liquid Limit Less Than 50%)			CL	Inorganic clays of low to medium plasticity; gravelly clays, sandy clays, silty clays, lean clays
		CLAYS OF HIGH PLASTICITY (Liquid Limit More Than 50%)			CH	Inorganic clays of high plasticity, fat clays, sandy clays of high plasticity

NOTE: **Coarse grained soils with between 5% & 12% passing the No. 200 sieve and fine grained soils with limits plotting in the hatched zone on the plasticity chart to have double symbol.**

PLASTICITY CHART



DEFINITIONS OF SOIL FRACTIONS

SOIL COMPONENT	PARTICLE SIZE RANGE
COBBLES	Above 3 inches
GRAVEL	3 inches to No. 4 sieve
Coarse Gravel	3 inches to 3/4 inch
Fine Gravel	3/4 inch to No. 4 sieve
SAND	No. 4 sieve to No. 200
Coarse	No. 4 sieve to No. 10
Medium	No. 10 sieve to No. 40
Fine	No 40 sieve to No. 200
FINES (SILT or CLAY)	Below No. 200 sieve

TERMINOLOGY USED TO DESCRIBE THE RELATIVE DENSITY CONSISTENCY, OR FIRMNESS OF SOIL

The terminology used on the boring logs to describe the relative density, consistency or firmness of soil relative to the standard penetration resistance is presented below. The standard penetration resistance (N) in blow per foot is obtained by ASTM D-1586 procedure using 2" O.D., 1-inch I.D. samplers.

RELATIVE DENSITY: Terms for description of relative density of cohesionless, uncemented sand and sand-gravel mixtures.

N	RELATIVE DENSITY
0-4	Very Loose
5-10	Loose
11-30	Medium Dense
31-50	Dense
50+	Very Dense

RELATIVE CONSISTENCY: Terms for the description of clay which is saturated or near saturation.

N	RELATIVE CONSISTENCY	REMARKS
0-2	Very Soft	Easily penetrated several inches with fist.
3-4	Soft	Easily penetrated several inches with thumb.
5-8	Firm	Can be penetrated several inches with thumb moderate effort.
9-15	Stiff	Readily indented with thumb but penetrated only with great effort.
16-30	Very Stiff	Readily indented with thumbnail.
30+	Hard	Indented only with difficulty by thumbnail.

RELATIVE FIRMNESS: Terms for the descriptions of partially saturated and/or cemented soil which commonly occurs in the Southwest including clay, cemented granular materials, silt and silty and clayey granular soil:

N	RELATIVE DENSITY
0-4	Very Soft
5-8	Soft
9-15	Moderately Firm
16-30	Firm
31-50	Very Firm
50+	Hard

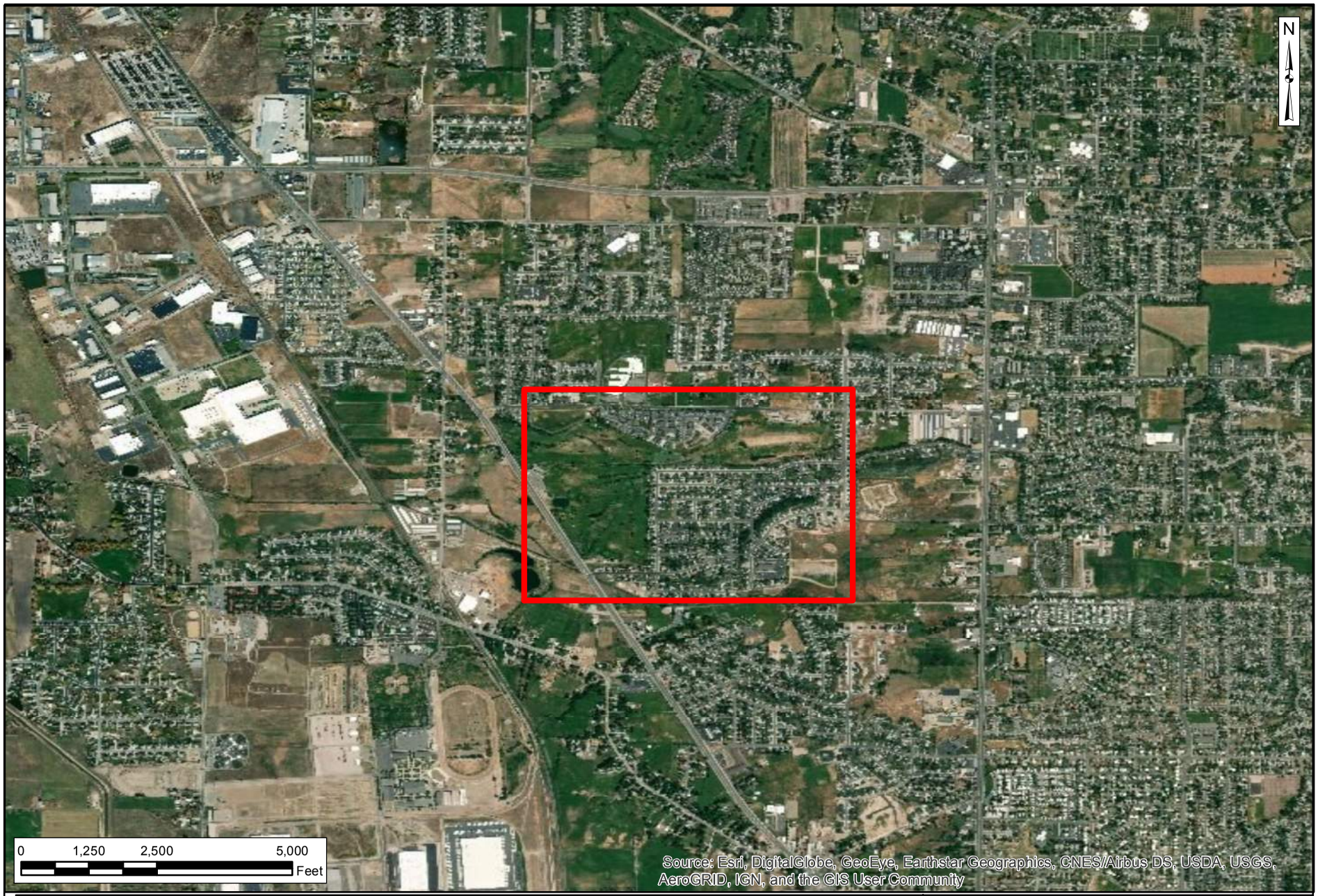
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SOIL MOISTURE CLASSIFICATION

MOISTURE CONDITION	FIELD IDENTIFICATION	ESTIMATED RANGE OF MOISTURE	
		Group A (%)	Group B (%)
Dry	Absence of moisture, dusty. Dry to the touch.	0-4	0-8
Damp	Grains appear slightly darkened, but no visible water. Silt/clay may clump. Sand will not bulk. Soils are below plastic limits.	4-8	8-16
Moist	Grains appear darkened, but no visible water. Silt/clay will clump. Sand will bulk. Soils are often at or near plastic limits.	8-16	16-30
Wet	Visible water on larger grain surfaces. Sand and cohesionless silt exhibit dilatancy. Cohesive silt/clay can be readily remolded. "Wet" indicates that the soil is much wetter than the optimum moisture content and above the plastic limit (APL).	>16	>30
Water Bearing	A water-producing formation.	N/A	N/A

Group A - Coarse Grained Soils, nonplastic to plasticity index <7.
Includes: SM, SP-SM, SP, SW, GM, GP, and GW.

Group B - Fine Grained Soils to clayey sands & gravels with a plasticity index >7.
Includes: GC, SC, ML, MH, CL, and CH.



SOURCE:			wood.	9865 South 500 West Sandy, Utah 84070 Tel: (801) 999-2002 Fax: (801) 999-2098	CLIENT Ben Lomond Development, LLC 51 West Center Street #644 Orem, Utah 84057
DATE: 6/17/19	SCALE: 1 inch = 2,462.42 feet	DWN BY: AW			PROJECT Ben Lomond Geotechnical Exploration Harrisville, UT
PROJECT NO: 19-817-05421	DATUM/PROJECTION: NAD 83 UTM 12	CHK'D BY: TG			TITLE Area Map FIGURE NO: A-5



SOURCE:		
DATE: 6/17/19	SCALE: 1 inch = 614.83 feet	DWN BY: AW
PROJECT NO: 19-817-05421	DATUM/PROJECTION: NAD 83 UTM 12	CHK'D BY: TG

wood.
9865 South 500 West
Sandy, Utah 84070
Tel: (801) 999-2002
Fax: (801) 999-2098

CLIENT
Ben Lomond Development, LLC
51 West Center Street #644
Orem, Utah 84057

PROJECT
Ben Lomond Geotechnical Exploration
Harrisville, UT

TITLE
Site Map

FIGURE NO:
A-6

LOG OF BORING NO. BL-19-01

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 1 of 2

Date: **5/6/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2926 °**
Longitude: **-111.9906 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
	0		**Lean CLAY [CL]** stiff, dark brown, Top Soil contains roots and grass, low plasticity									
	5		very stiff, red and gray, moist, with thin (2mm) layers of ML laminations, medium plasticity	1	35	6/6						
	10			2	17	18/18						
	15		medium stiff	3	5	18/18						
	20		stiff, red and gray, moist, with ML/SM laminations	4	14	6/6	94.7	25.5				
	25		25.0									

Remarks:

Water Level Observations

▽	**1.5 ft**	**6/10/19**
▼		

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.1

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BL-19-01

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 2 of 2

Date: **5/6/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2926 °**
Longitude: **-111.9906 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
			Poorly Graded SAND [SP] very loose, dark gray, moist, medium grained, subrounded	5	2	18/18		19.0	0.4			
	30		30.0 DRILL CHATTER ON POTENTIAL 3" GRAVEL, 10' HEAVE IN AUGER END OF BORING	6		0/18						No sample due to heave of drill
	35											
	40											
	45											
	50											

Remarks:

Water Level Observations

▽	**1.5 ft**	**6/10/19**
▼		

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.1

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BL-19-02

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 1 of 2

Date: **5/7/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2941 °**
Longitude: **-111.9909 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
			Lean CLAY [CL] soft, brown, moist, topsoil with roots and grass, medium plasticity									
	5		medium stiff, gray with oxide mottling, increase in silt content	1	8	18/18		27.0	99.0	46	23	
	10		medium stiff, with some silt laminations	2	8	18/18						
	15		medium stiff, reddish brown	3	9	18/18						
	20			4	11	18/18						
	25											

Remarks:

Water Level Observations

▽ 8.5 ft	6/10/19
▼	

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.2

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BL-19-02

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 2 of 2

Date: **5/7/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation, feet	Depth, feet	Graphic Log	Elevation: Latitude: **41.2941 °** Longitude: **-111.9909 °** MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
			stiff, trace gravel up to 1.5"									
	26.5			5	20	18/18						
			DRILL RIG SINKING INTO SOFT GROUND									
			END OF BORING									
	30											
	35											
	40											
	45											
	50											

Remarks:

Water Level Observations

▽	**8.5 ft**	**6/10/19**
▼		

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.2

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BL-19-03

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 1 of 2

Date: **5/7/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2911 °**
Longitude: **-111.9898 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
	0		**Lean CLAY [CL]** soft, red with gray mottling, moist, with some silt, medium plasticity									
	5		stiff	1	15	18/18						
	10		stiff	2	13	18/18		20.7	98.0	41	19	
	15		very stiff	3	24	6/6	106.9	21.2				
	20		stiff, with many silt layers	4	14	18/18						
	25											

Remarks:

Water Level Observations

▽	**3.0 ft**	**6/10/19**
▼		

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.3

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BL-19-03

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 2 of 2

Date: **5/7/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2911 °**
Longitude: **-111.9898 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
			stiff	5	11	18/18						
	30			6	10	18/18						
			31.5 END OF BORING									
	35											
	40											
	45											
	50											

Remarks:

Water Level Observations

▽	**3.0 ft**	**6/10/19**
▼		

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.3

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BL-19-04

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 1 of 2

Date: **5/7/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2884 °**
Longitude: **-111.9892 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
	0		**Lean CLAY [CL]** medium stiff, brown, moist, Top Soil with some silt, medium plasticity									
	5		medium stiff	1	9	18/18		27.8	98.0	45	18	
	10		soft, red and gray mottling	2	4	18/18						
	15		medium stiff	3	9	18/18						
	20		20.0									
			SILT [ML] medium stiff, gray to brown, moist, with clay and some fine sand, low to medium plasticity	4	15	6/6	99.6	23.0				
	25		25.0									

Remarks:

Water Level Observations

▽	**2.0 ft**	**6/10/19**
▼		

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.4

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BL-19-04

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 2 of 2

Date: **5/7/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2884 °**
Longitude: **-111.9892 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
			Lean CLAY [CL] stiff, gray to brown, moist, medium plasticity	5	11	18/18						
	30		medium stiff	6	9	18/18						
			31.5 End of Boring									
	35											
	40											
	45											
	50											

Remarks:

Water Level Observations

▽	**2.0 ft**	**6/10/19**
▼		

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.4

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BL-19-05

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 1 of 2

Date: **5/6/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2930 °**
Longitude: **-111.9882 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
			Lean CLAY [CL] medium stiff, brown, moist, Top Soil with grass and roots, medium plasticity									
	5		**Fat CLAY [CH]** medium stiff, reddish and gray, moist, with ML laminations, medium to high plasticity	1	8	18/18						
	10		very stiff	2	22	6/6						
	15		stiff	3	13	18/18						
	20		medium stiff	4	11	18/18		27.3	98.0	52	26	
	25											

5.0

Remarks:

Water Level Observations

▽	**2.5 ft**	**6/10/19**
▼		

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.5

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BL-19-05

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 2 of 2

Date: **5/6/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2930 °**
Longitude: **-111.9882 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
			medium stiff	5	9	18/18						
	30		30.0 6' HEAVE IN AUGER, NO SAMPLE RECOVERED. CHASED WITH SECOND SAMPLER, RECOVERED CLAY AS DESCRIBED ABOVE. END OF BORING	6								No sample due to heave in borehole
	35											
	40											
	45											
	50											

Remarks:

Water Level Observations

▽	**2.5 ft**	**6/10/19**
▼		

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.5

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BL-19-06

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 1 of 2

Date: **5/7/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2901 °**
Longitude: **-111.9871 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
			Lean CLAY [CL] soft, brown, moist, with some silt, medium plasticity									
	5		soft	1	7	18/18						
	10		medium stiff, red and gray mottling	2	10	18/18						
	15		medium stiff	3	10	18/18		22.3	89.0	39	19	
	20		medium stiff	4	9	18/18						
	25											

Remarks:

Water Level Observations

▽

▼

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.6

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BL-19-06

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 2 of 2

Date: **5/7/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2901 °**
Longitude: **-111.9871 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
			medium stiff, with ML laminations	5	6	18/18						
	30		brown	6	5	18/18						
			31.5 END OF BORING GROUND WATER ENCOUNTERED - DEPTH NOT RECORDED									
	35											
	40											
	45											
	50											

Remarks:

Water Level Observations

▽

▼

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.6

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BL-19-07

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 1 of 2

Date: **5/7/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2882 °**
Longitude: **-111.9870 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
			Lean CLAY [CL] stiff, brown, moist, Top soil with some organics, medium plasticity									
	5		**Lean CLAY [CL]** stiff, red with gray mottling, moist, with some silt, medium plasticity	1	18	18/18						
	10		stiff	2	13	18/18						
	15		very stiff	3	24	6/6						
	20		soft	4	6	18/18						
	25											

5.0

Remarks:

Water Level Observations

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.7

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BL-19-07

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 2 of 2

Date: **5/7/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2882 °**
Longitude: **-111.9870 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
			soft, with some silt and fine sand laminations	5	5	18/18		28.1	98.0	41	16	
	30		soft	6	4	18/18						
			31.5 END OF BORING GROUNDWATER ENCOUNTERED - DEPTH NOT RECORDED									
	35											
	40											
	45											
	50											

Remarks:

Water Level Observations

▽

▼

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.7

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BL-19-08

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 1 of 2

Date: **5/6/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2922 °**
Longitude: **-111.9843 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
			Lean CLAY [CL] medium stiff, brown, damp, Top Soil with roots and grass, medium plasticity									
	4.0											
	5		**Lean CLAY [CL]** very stiff, red and gray, damp, with ML laminations, medium plasticity	1	18	18/18		18.5	96.0	42	19	
	10		very stiff	2	37	6/6						
	15		very stiff	3	17	18/18						
	20		very stiff	4	33	6/6						
	25											

Remarks:

Water Level Observations

▽ **4.0 ft**	**6/10/19**
▼	

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.8

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BL-19-08

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 2 of 2

Date: **5/6/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2922 °**
Longitude: **-111.9843 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
			stiff	5	12	18/18						
	30		medium stiff, light gray	6		18/18						
			31.5 END OF BORING									
	35											
	40											
	45											
	50											

Remarks:

Water Level Observations

▽	**4.0 ft**	**6/10/19**
▼		

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.8

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BI-19-09

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 1 of 2

Date: **5/6/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2931 °**
Longitude: **-111.9975 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
			Lean CLAY [CL] medium stiff, brown, damp, Top Soil with roots and grass									
			4.0									
	5		**Lean CLAY [CL]** medium stiff, red, damp, with some black mottling, medium plasticity	1	11	18/18						
	10		very stiff	2	23	6/6						
	15		medium stiff, brown, with few ML laminations	3	7	18/18		26.0	97.0	48	24	
	20		medium stiff, brown, with some silt	4	8	18/18						
	25											

Remarks:

Water Level Observations

▽ 3.0 ft	6/10/19
▼	

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.9

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BI-19-09

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 2 of 2

Date: **5/6/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2931 °**
Longitude: **-111.9975 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
			medium stiff, with thin layers of black organics	5	8	18/18						
	30			6	8	18/18						
			31.5 END OF BORING									
	35											
	40											
	45											
	50											

Remarks:

Water Level Observations

▽	**3.0 ft**	**6/10/19**
▼		

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.9

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BL-19-10

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 1 of 2

Date: **5/6/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2933 °**
Longitude: **-111.9942 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
			Lean CLAY [CL] stiff, brown, damp, Top Soil with roots and grass									
			2.0									
			Lean CLAY [CL] stiff, red with black mottling, damp, with some organics									
	5		very stiff	1	22	6/6						
	10			2	11	18/18						
	15		with some ML laminations	3	10	18/18		24.4	98.0			
	20		stiff, with some silt, some ML lamninations, medium plasticity and some black organics	4	10	18/18						
	25											

Remarks:

Water Level Observations

▽ **5.0 ft**	**6/10/19**
▼	

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.10

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

LOG OF BORING NO. BL-19-10

Name: **Ben Lomond Development**
Location:

Project No: **19-817-05421** Sheet 2 of 2

Date: **5/6/19**
Drill Rig: **CME 75**
Drilled By: **Cascade**
Logged By: **T. Grummon**

wood.

Elevation:
Latitude: **41.2933 °**
Longitude: **-111.9942 °**

Elevation, feet	Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / 12-in.	Recovery, in	Unit Dry Weight, pcf	Water Content, %	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index	REMARKS
			medium stiff	5	9	18/18						
	30			6	8	18/18						
			31.5 END OF BORING									
	35											
	40											
	45											
	50											

Remarks:

Water Level Observations

▽	**5.0 ft**	**6/10/19**
▼		

The discussion in the report is necessary for a proper understanding of the nature of subsurface materials.

Fig. A-7.10

AMEC.SLC.BORING.6.STATION-OFFSET BEN LOMOND DEVELOPMENT - COPY.GPJ AMEC.SLC.GENGEO.1.GDT 6/20/19

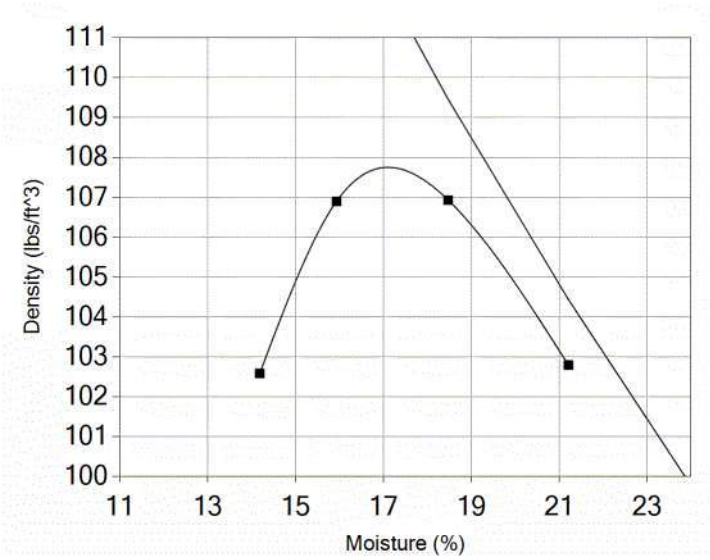
APPENDIX C

Moisture / Density Relationship

Report Date: June 24, 2019

Client		Project	
Name:	Ben Lomond Development LLC	**Name:**	(19-817-05421) Ben Lomond Development
Address:	51 West Center Street #664 Orem, UT 84057	**Address:**	Harrisville, UT
Attention:	William Scott	**Phase:**	**Task:**
PO Number:		**Manager:**	Marc Olesen
Sample Date:	5/7/2019 by Anthony Woo	**Lab/Ref. #:**	10143
Source:	BL-19-02@0	**Description:**	Bulk Sample

Type of Specification:



Moisture Density Relationship: (ASTM D1557-12) Method: A

Preparation Method: Dry **Rammer Type:** Mechanical

Specific Gravity: 2.6 Assumed

Maximum Density (lbs/ft^3): 107.8

Optimum Moisture (%): 17.1

Remarks:

Distribution: Thomas Grummon, Anthony Woo, Marc Olesen

Reviewed By: Anthony Woo

Anthony Woo

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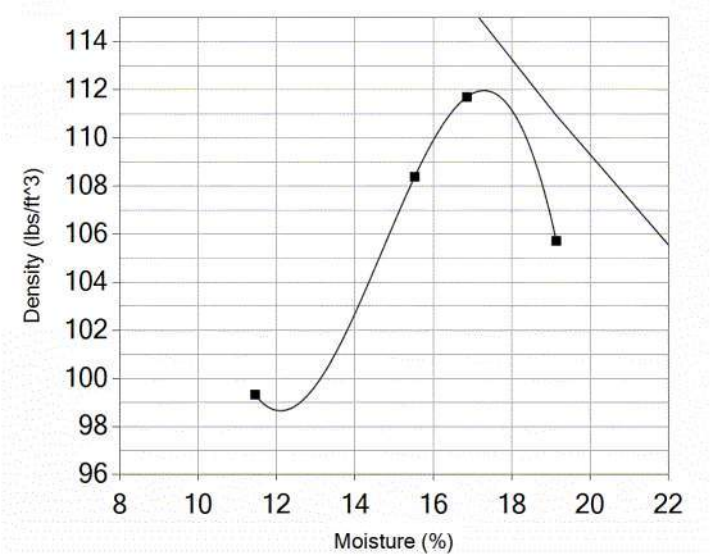
phone: 801 999 2002 fax: 801 999 2098

Moisture / Density Relationship

Report Date: June 24, 2019

Client		Project	
Name:	Ben Lomond Development LLC	**Name:**	(19-817-05421) Ben Lomond Development
Address:	51 West Center Street #664 Orem, UT 84057	**Address:**	Harrisville, UT
Attention:	William Scott	**Phase:**	**Task:**
PO Number:		**Manager:**	Marc Olesen
Sample Date:	5/7/2019 by Anthony Woo	**Lab/Ref. #:**	NS278732
Source:	BL-19-09@0	**Description:**	Bulk Sample

Type of Specification:



Moisture Density Relationship: (ASTM D1557-12) Method: A

Preparation Method: Dry **Rammer Type:**Mechanical

Specific Gravity: 2.7 Assumed

Maximum Density (lbs/ft^3): 112.0

Optimum Moisture (%): 17.3

Remarks:

Distribution: Thomas Grummon, Anthony Woo, Marc Olesen

Reviewed By: Anthony Woo

Anthony Woo

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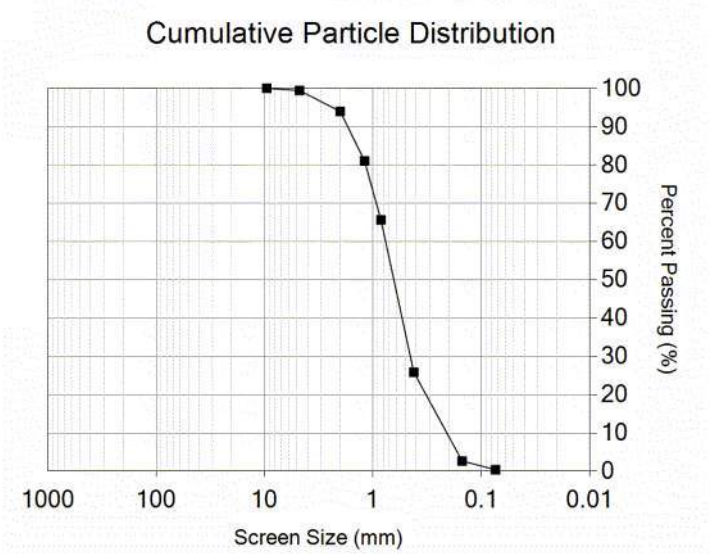
phone: 801 999 2002 fax: 801 999 2098

Sieve Analysis

Report Date: June 24, 2019

Client		Project	
Name:	Ben Lomond Development LLC	**Name:**	(19-817-05421) Ben Lomond Development
Address:	51 West Center Street #664 Orem, UT 84057	**Address:**	Harrisville, UT
Attention:	William Scott	**Phase:**	**Task:**
PO Number:		**Manager:**	Marc Olesen
Sample Date:	5/7/2019 by Anthony Woo	**Lab/Ref. #:**	NS280926
Source:	BL-1@25		

Type of Specification: No project specification was provided.



Sieve Analysis: (ASTM C117-13/C136-14)

200 Wash Procedure: A

Sieve Size	Passing	Specification Min	Specification Max
3/8in.	100%		
#4	99%		
#10	94%		
#16	81%		
#20	66%		
#40	26%		
#100	3%		
#200	0.4%		

Moisture Content (%): 19.0% **(ASTM D2216-10)**

Remarks:

Distribution: Thomas Grummon, Anthony Woo, Marc Olesen

Reviewed By: Anthony Woo

Anthony Woo

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phone: 801 999 2002 fax: 801 999 2098

Sieve Analysis

Report Date: June 24, 2019

Client		Project	
Name:	Ben Lomond Development LLC	**Name:**	(19-817-05421) Ben Lomond Development
Address:	51 West Center Street #664 Orem, UT 84057	**Address:**	Harrisville, UT
Attention:	William Scott	**Phase:**	**Task:**
PO Number:		**Manager:**	Marc Olesen
Sample Date:	5/7/2019 by Anthony Woo	**Lab/Ref. #:**	NS280927
Source:	BL-2@5		

Type of Specification: No project specification was provided.

Sieve Analysis: (ASTM C117-13/C136-14)

200 Wash Procedure: A

Sieve Size	Passing	Specification Min	Specification Max
#16	100%		
#20	100%		
#40	100%		
#100	100%		
#200	99%		

Moisture Content (%): 27.0% **(ASTM D2216-10)**

Plasticity Index (ASTM D4318-10) PI Air Dried.

Preparation Method: Dry **Liquid Limit Method:** A

Soil Classification (ASTM D2487-11)

		Specification Min	Specification Max
Liquid Limit:	46		
Plastic Limit:	23		
Plasticity Index:	23		

Remarks:

Distribution: Thomas Grummon, Anthony Woo, Marc Olesen

Reviewed By: Anthony Woo

Anthony Woo

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phone: 801 999 2002 fax: 801 999 2098

Sieve Analysis

Report Date: June 24, 2019

Client		Project	
Name:	Ben Lomond Development LLC	**Name:**	(19-817-05421) Ben Lomond Development
Address:	51 West Center Street #664 Orem, UT 84057	**Address:**	Harrisville, UT
Attention:	William Scott	**Phase:**	**Task:**
PO Number:		**Manager:**	Marc Olesen
Sample Date:	5/7/2019 by Anthony Woo	**Lab/Ref. #:**	NS280928
Source:	BL-3@10		

Type of Specification: No project specification was provided.

Sieve Analysis: (ASTM C117-13/C136-14)

200 Wash Procedure: A

Sieve Size	Passing	Specification Min	Specification Max
#4	100%		
#10	100%		
#16	99%		
#20	99%		
#40	99%		
#100	98%		
#200	98%		

Moisture Content (%): 20.7% **(ASTM D2216-10)**

Plasticity Index (ASTM D4318-10) PI Air Dried.

Preparation Method: Dry **Liquid Limit Method:** A

Soil Classification (ASTM D2487-11) CL

		Specification Min	Specification Max
Liquid Limit:	41		
Plastic Limit:	22		
Plasticity Index:	19		

Remarks:

Distribution: Thomas Grummon, Anthony Woo, Marc Olesen

Reviewed By: Anthony Woo

Anthony Woo

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phone: 801 999 2002 fax: 801 999 2098

Sieve Analysis

Report Date: June 24, 2019

Client		Project	
Name:	Ben Lomond Development LLC	**Name:**	(19-817-05421) Ben Lomond Development
Address:	51 West Center Street #664 Orem, UT 84057	**Address:**	Harrisville, UT
Attention:	William Scott	**Phase:**	**Task:**
PO Number:		**Manager:**	Marc Olesen
Sample Date:	5/7/2019 by Anthony Woo	**Lab/Ref. #:**	NS280930
Source:	BL-4@5		

Type of Specification: No project specification was provided.

Sieve Analysis: (ASTM C117-13/C136-14)

200 Wash Procedure: A

Sieve Size	Passing	Specification Min	Specification Max
#4	100%		
#10	100%		
#16	100%		
#20	100%		
#40	100%		
#100	98%		
#200	98%		

Moisture Content (%): 27.8% **(ASTM D2216-10)**

Plasticity Index (ASTM D4318-10) PI Air Dried.

Preparation Method: Dry **Liquid Limit Method:** A

Soil Classification (ASTM D2487-11) ML

		Specification Min	Specification Max
Liquid Limit:	45		
Plastic Limit:	27		
Plasticity Index:	18		

Remarks:

Distribution: Thomas Grummon, Anthony Woo, Marc Olesen

Reviewed By: Anthony Woo

Anthony Woo

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phone: 801 999 2002 fax: 801 999 2098

Sieve Analysis

Report Date: June 24, 2019

Client		Project	
Name:	Ben Lomond Development LLC	**Name:**	(19-817-05421) Ben Lomond Development
Address:	51 West Center Street #664 Orem, UT 84057	**Address:**	Harrisville, UT
Attention:	William Scott	**Phase:**	**Task:**
PO Number:		**Manager:**	Marc Olesen
Sample Date:	5/7/2019 by Anthony Woo	**Lab/Ref. #:**	NS280933
Source:	BL-5@20		

Type of Specification: No project specification was provided.

Sieve Analysis: (ASTM C117-13/C136-14)

200 Wash Procedure: A

Sieve Size	Passing	Specification Min	Specification Max
#4	100%		
#10	100%		
#16	100%		
#20	100%		
#40	100%		
#100	99%		
#200	98%		

Moisture Content (%): 27.3% **(ASTM D2216-10)**

Plasticity Index (ASTM D4318-10) PI Air Dried.

Preparation Method: Dry **Liquid Limit Method:** A

Soil Classification (ASTM D2487-11) CH

		Specification Min	Specification Max
Liquid Limit:	52		
Plastic Limit:	26		
Plasticity Index:	26		

Remarks:

Distribution: Thomas Grummon, Anthony Woo, Marc Olesen

Reviewed By: Anthony Woo

Anthony Woo

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phone: 801 999 2002 fax: 801 999 2098

Sieve Analysis

Report Date: June 24, 2019

Client		Project	
Name:	Ben Lomond Development LLC	**Name:**	(19-817-05421) Ben Lomond Development
Address:	51 West Center Street #664 Orem, UT 84057	**Address:**	Harrisville, UT
Attention:	William Scott	**Phase:**	**Task:**
PO Number:		**Manager:**	Marc Olesen
Sample Date:	5/7/2019 by Anthony Woo	**Lab/Ref. #:**	NS280934
Source:	BL-6@15		

Type of Specification: No project specification was provided.

Sieve Analysis: (ASTM C117-13/C136-14)

200 Wash Procedure: A

Sieve Size	Passing	Specification Min	Specification Max
3/8in.	100%		
#4	100%		
#10	99%		
#16	99%		
#20	98%		
#40	97%		
#100	93%		
#200	89%		

Plasticity Index (ASTM D4318-10) PI Air Dried.

Preparation Method: Dry **Liquid Limit Method:** A

Soil Classification (ASTM D2487-11) CL

		Specification Min	Specification Max
Liquid Limit:	39		
Plastic Limit:	20		
Plasticity Index:	19		

Remarks:

Distribution: Thomas Grummon, Anthony Woo, Marc Olesen

Reviewed By: Anthony Woo

Anthony Woo

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phone: 801 999 2002 fax: 801 999 2098

Sieve Analysis

Report Date: June 24, 2019

Client		Project	
Name:	Ben Lomond Development LLC	**Name:**	(19-817-05421) Ben Lomond Development
Address:	51 West Center Street #664 Orem, UT 84057	**Address:**	Harrisville, UT
Attention:	William Scott	**Phase:**	**Task:**
PO Number:		**Manager:**	Marc Olesen
Sample Date:	5/7/2019 by Anthony Woo	**Lab/Ref. #:**	NS280936
Source:	BL-7@25		

Type of Specification: No project specification was provided.

Sieve Analysis: (ASTM C117-13/C136-14)

200 Wash Procedure: A

Sieve Size	Passing	Specification Min	Specification Max
#20	100%		
#40	100%		
#100	99%		
#200	98%		

Moisture Content (%): 28.1% **(ASTM D2216-10)**

Plasticity Index (ASTM D4318-10) PI Air Dried.

Preparation Method: Dry **Liquid Limit Method:** A

Soil Classification (ASTM D2487-11)

		Specification Min	Specification Max
Liquid Limit:	41		
Plastic Limit:	25		
Plasticity Index:	16		

Remarks:

Distribution: Thomas Grummon, Anthony Woo, Marc Olesen

Reviewed By: Anthony Woo

Anthony Woo

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phone: 801 999 2002 fax: 801 999 2098

Sieve Analysis

Report Date: June 24, 2019

Client		Project	
Name:	Ben Lomond Development LLC	**Name:**	(19-817-05421) Ben Lomond Development
Address:	51 West Center Street #664 Orem, UT 84057	**Address:**	Harrisville, UT
Attention:	William Scott	**Phase:**	**Task:**
PO Number:		**Manager:**	Marc Olesen
Sample Date:	5/7/2019 by Anthony Woo	**Lab/Ref. #:**	NS280937
Source:	BL-8@5		

Type of Specification: No project specification was provided.

Sieve Analysis: (ASTM C117-13/C136-14)

200 Wash Procedure: A

Sieve Size	Passing	Specification Min	Specification Max
#4	100%		
#10	100%		
#16	100%		
#20	100%		
#40	99%		
#100	96%		
#200	96%		

Moisture Content (%): 18.5% **(ASTM D2216-10)**

Plasticity Index (ASTM D4318-10) PI Air Dried.

Preparation Method: Dry **Liquid Limit Method:** A

Soil Classification (ASTM D2487-11) CL

		Specification Min	Specification Max
Liquid Limit:	42		
Plastic Limit:	23		
Plasticity Index:	19		

Remarks:

Distribution: Thomas Grummon, Anthony Woo, Marc Olesen

Reviewed By: Anthony Woo

Anthony Woo

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phone: 801 999 2002 fax: 801 999 2098

Sieve Analysis

Report Date: June 24, 2019

Client		Project	
Name:	Ben Lomond Development LLC	**Name:**	(19-817-05421) Ben Lomond Development
Address:	51 West Center Street #664 Orem, UT 84057	**Address:**	Harrisville, UT
Attention:	William Scott	**Phase:**	**Task:**
PO Number:		**Manager:**	Marc Olesen
Sample Date:	5/7/2019 by Anthony Woo	**Lab/Ref. #:**	NS280939
Source:	BL-9@15		

Type of Specification: No project specification was provided.

Sieve Analysis: (ASTM C117-13/C136-14)

200 Wash Procedure: A

Sieve Size	Passing	Specification Min	Specification Max
#10	100%		
#16	100%		
#20	100%		
#40	100%		
#100	98%		
#200	97%		

Moisture Content (%): 26.0% **(ASTM D2216-10)**

Plasticity Index (ASTM D4318-10) PI Air Dried.

Preparation Method: Dry **Liquid Limit Method:** A

Soil Classification (ASTM D2487-11)

		Specification Min	Specification Max
Liquid Limit:	48		
Plastic Limit:	24		
Plasticity Index:	24		

Remarks:

Distribution: Thomas Grummon, Anthony Woo, Marc Olesen

Reviewed By: Anthony Woo

Anthony Woo

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phone: 801 999 2002 fax: 801 999 2098

Sieve Analysis

Report Date: June 24, 2019

Client		Project	
Name:	Ben Lomond Development LLC	**Name:**	(19-817-05421) Ben Lomond Development
Address:	51 West Center Street #664 Orem, UT 84057	**Address:**	Harrisville, UT
Attention:	William Scott	**Phase:**	**Task:**
PO Number:		**Manager:**	Marc Olesen
Sample Date:	5/7/2019 by Anthony Woo	**Lab/Ref. #:**	NS280940
Source:	BL-10@15		

Type of Specification: No project specification was provided.

Sieve Analysis: (ASTM C117-13/C136-14)

200 Wash Procedure: A

Sieve Size	Passing	Specification Min	Specification Max
#20	100%		
#40	100%		
#100	100%		
#200	98%		

Moisture Content (%): 24.4% **(ASTM D2216-10)**

Soil Classification (ASTM D2487-11)

Remarks:

Distribution: Thomas Grummon, Anthony Woo, Marc Olesen

Reviewed By: Anthony Woo

Anthony Woo

Wood Environment & Infrastructure Solutions, Inc. - 9865 South 500 West - Salt Lake City, UT 84070

phone: 801 999 2002 fax: 801 999 2098

California Bearing Ratio of Laboratory-Compacted Soils (ASTM D183)

Project No.	19-817-05421
Project Name	Ben Lomond Development
Project Engineer	
Tested By	AW
Client:	Ben Lomond Development
Material Supplier:	Native
Sample Date:	5/9/2019

Completion Date	

Boring No:	BL-19
Sample No.:	2
Depth (ft):	0'
Soil Description	Clayey Sand with Silt
Location:	Harrisville, UT
Work Order No.:	10143
Task. No.:	

PROCTOR INFORMATION

☑ ASTM D698C ☐ ASTM D1557A

D698C MAX DENSITY	107.6
D698C MOISTURE	18.3

# of Layers	3	
# Blows/Layer	56	
Weight of Hammer	5.5	lb
Height of Drop	12	in

Diameter of Mold	6	in
Height of Mold	4.563	in
Surcharge Weight	10	lb
Volume Mold	0.0747	ft^3

	MOIST BEFORE	MOIST AFTER	
Wt. Sample+Mold (g)	11026.5	11240.3	
Mold Wt.(g)	6924.9	6924.9	
Wt. Wet Sample (g)	4101.6	4315.4	
Wt. Wet Sample (lbs.)	9.04	9.51	
Wet Density (lbs./cu.ft)	**121.1**	**127.4**	
	All	**Top**	**Bottom**
Moist Sample Wet(g)	526.4	473.3	
Moist Sample Dry(g)	449.1	359.7	
Moisture, %	17.2	31.6	
Dry Density (lb./ft^3)	**103.3**	**96.8**	
Percent Max Dry Density	**96%**		

NO

Proving Ring ID

PENETRATION	TOP		BOTTOM	
	TOTAL LOAD (lb)	**UNIT LOAD (psi)**	**TOTAL LOAD**	**UNIT LOAD (psi)**
0.025	21	7		
0.050	28	9		
0.075	35	12		
0.100	41	14		
0.150	53	18		
0.200	67	22		
0.250	74	25		
0.300	81	27		
0.400	103	34		
0.500	126	42		

Proving Ring Load (in)	
Top	Bottom

SWELL CALCULATIONS

TOP		
DATE	**READING**	**% SWELL**
	0.019	
	0.101	
		1.8%

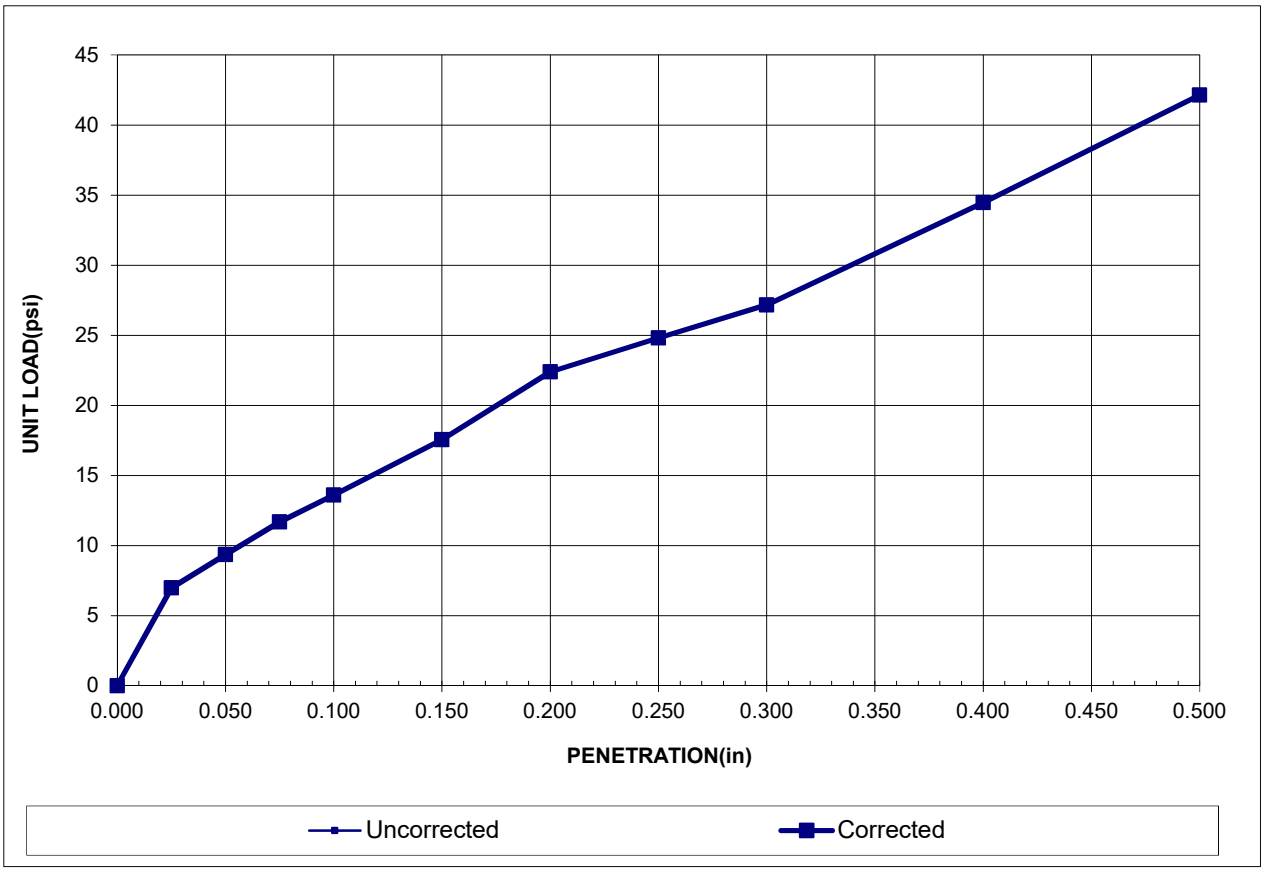
PROJECT NO:	19-817-05421	**WORK ORDER NO:**	
PROJECT NAME:	Ben Lomond Development	**LAB NO:**	10143
LOCATION:	BL-19 2 0' ft	**DATE SAMPLED:**	9-May-19
SOIL DESCRIPTION:	Clayey Sand with Silt		

CALIFORNIA BEARING RATIO OF LABORATORY-COMPACTED SOILS (ASTM D1883)

COMPACTION: 96%
PROCEDURE: 3 lifts at 56 blows/lift
SURCHARGE WEIGHT: 10 lb

	ASTM PROCTOR	BEFORE SOAK	AFTER SOAK
DRY DENSITY	107.6	103.3	96.8
MOISTURE, %	18.3	17.2	31.6

PERCENT SWELL 1.8%



CORRECTED CBR-VALUE

PENETRATION	
0.1	1
0.2	1

Reviewed by: _____

California Bearing Ratio of Laboratory-Compacted Soils (ASTM D183)

Project No.	19-817-05421
Project Name	Ben Lomond Development
Project Engineer	
Tested By	AW
Client:	Ben Lomond Development
Material Supplier:	Native
Sample Date:	5/9/2019

Completion Date	

Boring No:	BL-19
Sample No.:	9
Depth (ft):	0'
Soil Description	Clayey Sand With Silt
Location:	Harrisville, UT
Work Order No.:	10143
Task. No.:	

PROCTOR INFORMATION

☑ ASTM D698C ☐ ASTM D1557A

D698C MAX DENSITY	112
D698C MOISTURE	17.3

# of Layers	3	
# Blows/Layer	56	
Weight of Hammer	5.5	lb
Height of Drop	12	in

Diameter of Mold	6	in
Height of Mold	4.563	in
Surcharge Weight	10	lb
Volume Mold	0.0747	ft^3

	MOIST BEFORE	MOIST AFTER	
Wt. Sample+Mold (g)	11207.4	11395.6	
Mold Wt.(g)	7162.4	7162.4	
Wt. Wet Sample (g)	4045	4233.2	
Wt. Wet Sample (lbs.)	8.92	9.33	
Wet Density (lbs./cu.ft)	**119.4**	**125.0**	
	All	**Top**	**Bottom**
Moist Sample Wet(g)	586.1	482.5	
Moist Sample Dry(g)	500.4	375.6	
Moisture, %	17.1	28.5	
Dry Density (lb./ft^3)	**102.0**	**97.3**	
Percent Max Dry Density	**91%**		

NO

Proving Ring ID

PENETRATION	TOP		BOTTOM	
	TOTAL LOAD (lb)	**UNIT LOAD (psi)**	**TOTAL LOAD**	**UNIT LOAD (psi)**
0.025	40	13		
0.050	57	19		
0.075	71	24		
0.100	83	28		
0.150	106	35		
0.200	112	37		
0.250	120	40		
0.300	129	43		
0.400	148	49		
0.500	164	55		

Proving Ring Load (in)	
Top	Bottom

SWELL CALCULATIONS

TOP		
DATE	**READING**	**% SWELL**
	0.005	
	0.090	
		1.9%

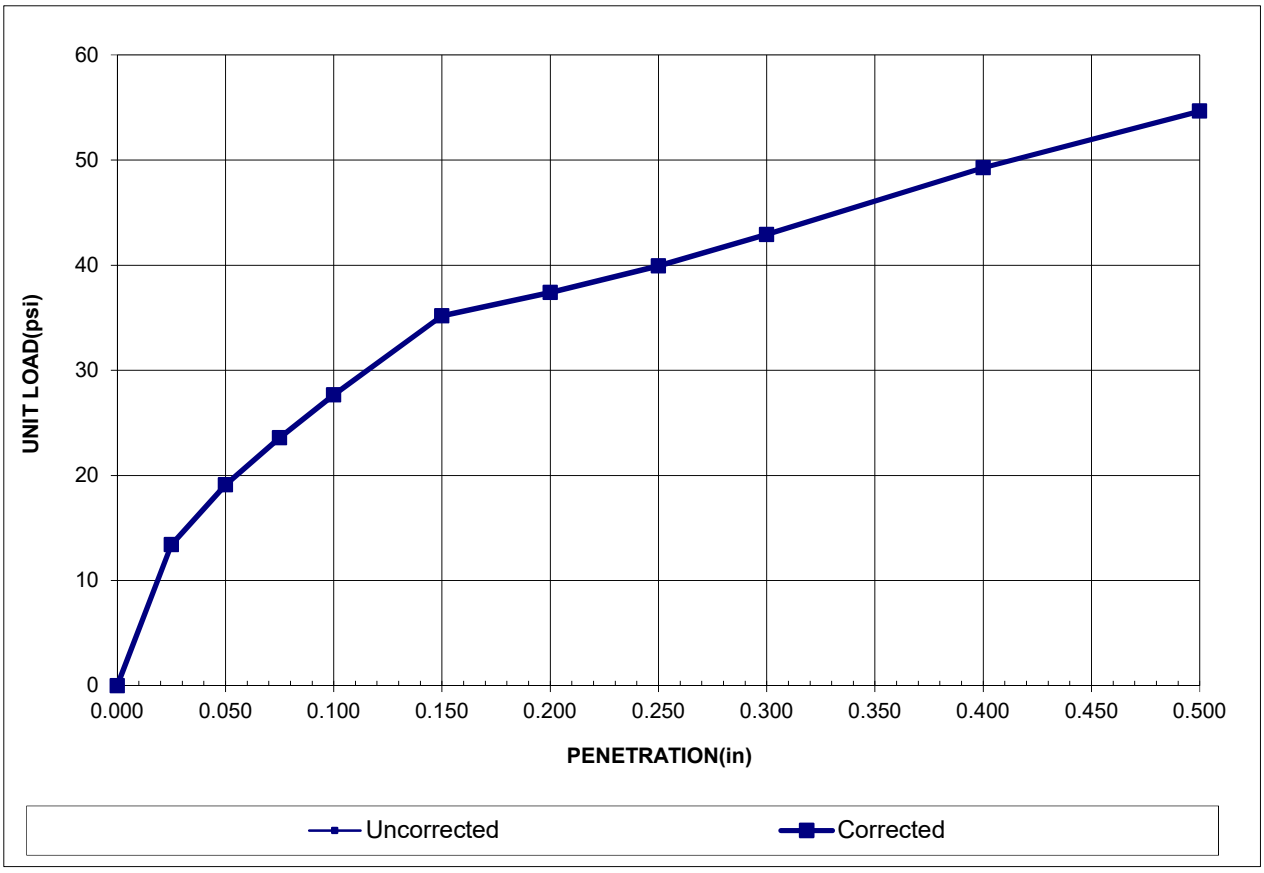
PROJECT NO:	19-817-05421	**WORK ORDER NO:**	
PROJECT NAME:	Ben Lomond Development	**LAB NO:**	10143
LOCATION:	BL-19 9 0' ft	**DATE SAMPLED:**	9-May-19
SOIL DESCRIPTION:	Clayey Sand With Silt		

CALIFORNIA BEARING RATIO OF LABORATORY-COMPACTED SOILS (ASTM D1883)

COMPACTION: 91%
PROCEDURE: 3 lifts at 56 blows/lift
SURCHARGE WEIGHT: 10 lb

	ASTM PROCTOR	BEFORE SOAK	AFTER SOAK
DRY DENSITY	112	102.0	97.3
MOISTURE, %	17.3	17.1	28.5

PERCENT SWELL 1.9%



CORRECTED CBR-VALUE

PENETRATION	
0.1	3
0.2	2

Reviewed by: _____

Exhibit M Conservation Plan

Exhibit M-1
Conservation Plan

This Conservation Plan is based on a consideration of the presence on the Ben Lomond Views site of significant natural resources such as wetlands or flood plain areas. Historic and cultural resources, including any of archaeological significance, are addressed in Exhibit N.

The Plan includes the following information

1. Exhibit M-2, Jurisdictional Determination Letter from the U.S. Army Corps of Engineers
2. Exhibit M-3, Approved Jurisdictional Determination Form and Enclosure
3. Exhibit M-4, Bio-West Aquatic Resources Inventory Report
4. Sensitive Lands Map, included as Exhibit K to this MDA.
5. The Excluded Area, identified on Exhibit B-1 to this MDA.

A. Wetlands

The U.S. Army Corp of Engineers has reviewed the conditions on the Ben Lomond Views site and has determined that none of the wetlands or other aquatic resources are subject to their jurisdiction. This jurisdictional determination was conveyed in a letter of August 21, 2020 that is included in this Conservation Plan as Exhibit 2A. An Approved Jurisdictional Determination Form and related enclosures is included here in Exhibit 2B.

One notable finding cited in the Determination Form is that the golf course was constructed in 1957 on uplands and that all ponds on the site were artificially constructed by excavating uplands. The Ben Lomond Views Master Plan is retaining two of these ponds as part of the landscape plan and for use in stormwater retention. The Ben Lomond Views site has no wetlands requiring conservation.

The Master Plan does include two of the original ponds which are being retained a Park E and Park G in the PTOS Plan and Parks Plan (see Exhibits O-2 and O-3)

B. Floodplain

FEMA studies of the Lower Weber Watershed in 2018 and 2019 identified an expansion of the 100-year floodzone that is reflected in the pending remapping of the FEMA floodplain insurance maps. The remapped floodplain is shown in the Sensitive Lands Plan, included as Exhibit K of this MDA.

The immediate cause of the floodplain expansion onto the Ben Lomond Views site and adjacent residential neighborhoods is the insufficient capacity of a culvert at 1900 N in North Ogden at a location the FEMA studies refer to as the Golf Course Split. Here water at higher flood events backs up against the culvert and flows over the right overbank of the Coldwater Gulch channel.

It then tends to flow west across a section of Ben Lomond Views and portions of adjacent neighborhoods.

BLD Investment, LLC is planning to fund an engineering study to determine the feasibility of eliminating this flooding and reversing the flood plain remapping by making improvements to the Coldwater Gulch floodway including enlargement of the 1900 N culvert.

Unless this remapping occurs, the flood plain area will remain undeveloped, including 15 lots in Excluded Area identified in Master Plan, Exhibit B-1 of this MDA.

Exhibit M-2

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

August 21, 2020

Regulatory Division (SPK-2020-00042)

Ben Lomond Development, LLC
Attn: Mr. Douglas Palermo
51 West Center Street #664
Orem, Utah 84057
depnorfolk@gmail.com

Dear Mr. Palermo:

We are responding to your January 7, 2020 request for an approved jurisdictional determination for the Ben Lomond Golf Course site. The approximately 127.7-acre project site is located adjacent to and directly east of U.S. Highway 89 (US-89) and south of west 200 North Street, Latitude 41.2907°, Longitude -111.9853°, Harrisville, Weber County, Utah (enclosure 1).

Based on available information, we concur with your aquatic resources delineation for the site, as depicted on the enclosed May 20, 2020 Ben Lomond Golf Course Harrisville, Utah - Aquatic Resources Survey drawing prepared by Bio-West Consultants (enclosure 2). Approximately 5.67 acres of aquatic resources, consisting of 2.24 acres of wetlands identified as Wetlands A, B, C, D, E, and F, 0.56 acres (3,086 linear feet) of ditches identified as Ditch 1 and 2, and 5 ornamental ponds with a combined area of 2.87 acres are present within the survey area.

The 5.67-acre of aquatic resources identified as Wetlands A, B, C, D, E, and F, Ditches 1, and 2, and the 5 ornamental ponds in the enclosed drawings are not waters of the United States pursuant to 33 CFR §328.3(a) and are, therefore, excluded by 33 CFR §328.3(b)(1). Specifically, the wetlands do not meet the adjacency criteria, the ditches are not considered tributaries, and the ornamental ponds are artificial as specified by 33 CFR §328.3(c)(1). As such, these aquatic resources are not regulated by the U.S. Army Corps of Engineers pursuant to the Navigable Waters Protection Rule (85 FR 22250-22342, April 21, 2020). This disclaimer of jurisdiction is only for Section 404 of the Federal Clean Water Act.

We are enclosing a copy of the *Approved Jurisdictional Determination Form* for your site (enclosure 3).

This approved jurisdictional determination is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 Code of Federal Regulations (CFR) Part 331.

A *Notification of Appeal Process (NAP) and Request for Appeal (RFA) Form* is enclosed (enclosure 4). If you request to appeal this determination, you must submit a completed RFA form to the South Pacific Division Office at the following address: Administrative Appeal Review Officer, Army Corps of Engineers, South Pacific Division, CESPD-PDO, 1455 Market Street, 2052B, San Francisco, California 94103-1399, Telephone: 415-503-6574, FAX: 415-503-6646.

In order for an RFA to be accepted by the Corps, we must determine that the form is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that the form was received by the Division Office within 60 days of the date of the NAP. It is not necessary to submit an RFA form to the Division Office unless you object to the determination in this letter.

We recommend that you provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This approved jurisdictional determination has been conducted to identify the limits of aquatic resources subject to U.S. Army Corps of Engineers jurisdiction under Section 404 of the Clean Water Act and/or Section 9 and 10 of the Rivers and Harbors Act for the particular site identified in this request.

We appreciate feedback, especially about interaction with our staff and our processes.

Please refer to identification number SPK-2020-00042 in any correspondence concerning this project. If you have any questions, please contact Nicole Fresard at 533 West 2600 South, Suite 150, Bountiful, Utah 84010, by email at *Nicole.D.Fresard@usace.army.mil*, or telephone at (801) 295-8380 ext. 8321. For program information or to complete our Customer Survey, visit our website at *www.spk.usace.army.mil/Missions/Regulatory.aspx*.

Sincerely,



Michael Jewell
Chief, Regulatory Division

Enclosures

cc: Mr. Bob Thomas (bthomas@bio-west.com)

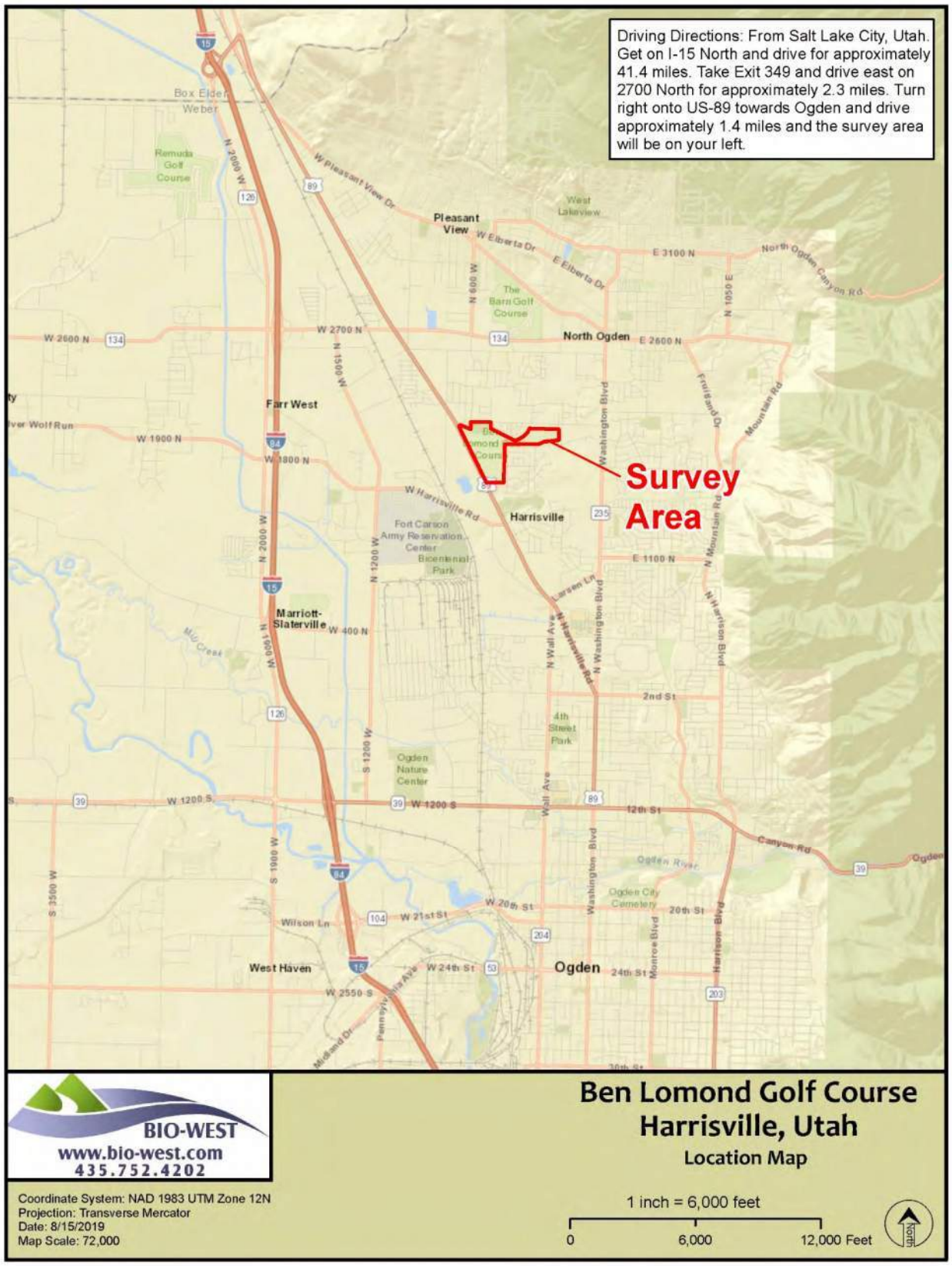


Figure 1. Survey area location map.



Ben Lomond Golf Course Harrisville, Utah

Aquatic Resources Survey

Legend

- Sample Point
- OHWM Site
- Irrigation Ditch
- Pond
- Emergent Wetland Pond Fringe
- Emergent Wetland
- Survey Area

Wetlands

A = 1.47 acres
B = 0.05 acre
C = 0.19 acre
D = 0.30 acre
E = 0.04 acre
F = 0.19 acre

Survey Area Summary
Irrigation Ditch = 0.56 acre / 3,086 lf Pond = 2.87 acres Emergent Wetland Pond Fringe = 0.38 acre Emergent Wetland = 1.86 acres
Upland = 119.03 acres
Total Survey Area = 124.70 acres

North

1 inch = 352 feet

0 350 700 Feet

Coordinate System: NAD 1983 UTM Zone 12N
Projection: Transverse Mercator
Date: 5/20/2020
Map Scale: 4,224

BIO-WEST
www.bio-west.com
435.752.4202

U.S. ARMY CORPS OF ENGINEERS Exhibit M-3
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE

I. ADMINISTRATIVE INFORMATION

Completion Date of Approved Jurisdictional Determination (AJD): 8/17/2020
ORM Number: SPK-2020-00042
Associated JDs: N/A
Review Area Location[1]: State/Territory: UT City: Harrisville County/Parish/Borough: Weber County
Center Coordinates of Review Area: Latitude 41.2907 Longitude -111.9853

II. FINDINGS

A. Summary: Check all that apply. At least one box from the following list MUST be selected. Complete the corresponding sections/tables and summarize data sources.

- ☐ The review area is comprised entirely of dry land (i.e., there are no waters or water features, including wetlands, of any kind in the entire review area). Rationale: N/A
- ☐ There are "navigable waters of the United States" within Rivers and Harbors Act jurisdiction within the review area (complete table in Section II.B).
- ☐ There are "waters of the United States" within Clean Water Act jurisdiction within the review area (complete appropriate tables in Section II.C).
- ☒ There are waters or water features excluded from Clean Water Act jurisdiction within the review area (complete table in Section II.D).

B. Rivers and Harbors Act of 1899 Section 10 (§ 10)[2]

§ 10 Name	§ 10 Size		§ 10 Criteria	Rationale for § 10 Determination
N/A.	N/A.	N/A	N/A.	N/A.

C. Clean Water Act Section 404

Territorial Seas and Traditional Navigable Waters ((a)(1) waters):[3]				
(a)(1) Name	(a)(1) Size		(a)(1) Criteria	Rationale for (a)(1) Determination
N/A.	N/A.	N/A.	N/A.	N/A.

Tributaries ((a)(2) waters):				
(a)(2) Name	(a)(2) Size		(a)(2) Criteria	Rationale for (a)(2) Determination
N/A.	N/A.	N/A.	N/A.	N/A.

Lakes and ponds, and impoundments of jurisdictional waters ((a)(3) waters):				
(a)(3) Name	(a)(3) Size		(a)(3) Criteria	Rationale for (a)(3) Determination
N/A.	N/A.	N/A.	N/A.	N/A.

Adjacent wetlands ((a)(4) waters):				
(a)(4) Name	(a)(4) Size		(a)(4) Criteria	Rationale for (a)(4) Determination
N/A.	N/A.	N/A.	N/A.	N/A.

[1] Map(s)/figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD Form.

D. Excluded Waters or Features

Excluded waters ((b)(1) – (b)(12)):[4]				
Exclusion Name	Exclusion Size		Exclusion[5]	Rationale for Exclusion Determination
Ditch 1: East to West.	1,666	linear feet	(b)(5) Ditch that is not an (a)(1) or (a)(2) water, and those portions of a ditch constructed in an (a)(4) water that do not satisfy the conditions of (c)(1).	A search of the Utah Department of Natural Resources (DNR) Aerial Imagery Collection revealed that the ditches documented on-site did not relocate a tributary or were constructed in a tributary or constructed in adjacent wetlands. Therefore, since ditch 1 is not a tributary under (a)(2), exclusion (b)(5) applies.
Ditch 2: South to Southeast.	1,420	linear feet	(b)(5) Ditch that is not an (a)(1) or (a)(2) water, and those portions of a ditch constructed in an (a)(4) water that do not satisfy the conditions of (c)(1).	A search of the Utah DNR Aerial Imagery Collection revealed that the ditches documented on-site did not relocate a tributary or were constructed in a tributary or constructed in adjacent wetlands. Therefore, since ditch 2 is not a tributary under (a)(2), exclusion (b)(5) applies.
Ornamental Ponds	2.87	acre(s)	(b)(8) Artificial lake/pond constructed or excavated in upland or a non-jurisdictional water, so long as the artificial lake or pond is not an impoundment of a jurisdictional water that meets (c)(6).	The golf course was constructed in 1957. A search of the Utah DNR Aerial Imagery Collection revealed the golf course was constructed in uplands. Therefore, the ponds are artificial, excavated in uplands, and do not meet the conditions of paragraph (c)(6). Artificial ponds meet the (b)(8) exclusion.
Wetland A	1.47	acre(s)	(b)(1) Non-adjacent wetland.	This wetland is located within a detention basin that was constructed in uplands on the northern side of the golf course in the lower area of the detention basin. A grated inflow pipe is located on the north side of the detention basin which allows water flow and ponding of water in the wetland. The detention basin was constructed for flood control within Harrisville City's Millennial Park located in the northeast section of the

[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

Excluded waters ((b)(1) – (b)(12)):[4]				
Exclusion Name	Exclusion Size		Exclusion[5]	Rationale for Exclusion Determination
				survey area. The detention basin was constructed wholly in uplands and controls features that convey, treat, infiltrate, or store stormwater runoff. Therefore, the detention basin meets the (b)(10) exclusion.
Wetland B	0.05	acre(s)	(b)(1) Non-adjacent wetland.	This wetland is located within a low drainage swale that receives surface water drainage from one of the golf course ponds. This wetland does not abut, nor is it inundated by flooding from, an (a)(1), (2), or (3) water in a typical year, nor is it physically separated from an a)(1), (2), or (3) water by a natural or artificial barrier. This swale could have been an old drainage ditch that became overgrown with wetland vegetation.
Wetland C	0.19	acre(s)	(b)(1) Non-adjacent wetland.	This wetland is growing along the margins of an artificial pond located on the southeast side of the golf course. Although this wetland is growing within the pond margins (i.e. directly abutting), the wetland does not meet the conditions of paragraph (a)(4) for adjacency since the pond is an excluded feature pursuant to (b)(8). A wetland adjacent only to a non-jurisdictional water meets the (b)(1) exclusion.
Wetland D	0.30	acre(s)	(b)(1) Non-adjacent wetland.	This wetland is situated east of the ditch that runs in a south-southeast direction at the center portion of the golf course. This wetland is directly abutting the ditch; however, the wetland does not meet the conditions of paragraph (a)(4) for adjacency since the ditch is an excluded feature pursuant to (b)(5), see Ditch 2: South to Southeast. A wetland adjacent only to a non-jurisdictional water meets the (b)(1) exclusion.
Wetland E	0.04	acre(s)	(b)(1) Non-adjacent wetland.	This wetland is situated at the terminus of a ditch located on-site and collects seasonal overbank flooding from the ditch at times of high flow. The ditch is excluded pursuant to (b)(5), see Ditch 2: South to Southeast. This wetland does not abut, nor is it inundated by flooding from, an (a)(1), (2), or (3) water in a typical year, nor is it physically separated from an (a)(1), (2), or (3) water by a natural or artificial barrier.
Wetland F	0.19	acre(s)	(b)(1) Non-adjacent wetland.	This wetland is growing along the margins of an artificial pond located on the southeast side of the golf course. Although this wetland is growing within the pond margins (i.e. directly abutting), the wetland does not meet the conditions of paragraph (a)(4) for adjacency since the pond is an excluded pursuant to (b)(8), see Ornamental

Excluded waters ((b)(1) – (b)(12)):[4]				
Exclusion Name	Exclusion Size		Exclusion[5]	Rationale for Exclusion Determination
				Ponds. A wetland adjacent only to a non-jurisdictional water meets the (b)(1) exclusion.

III. SUPPORTING INFORMATION

A. Select/enter all resources that were used to aid in this determination and attach data/maps to this document and/or references/citations in the administrative record, as appropriate.

☒ Information submitted by, or on behalf of, the applicant/consultant: Ben Lomond Golf Course 127.7-acre Parcel Aquatic Resources Inventory Report Weber County, Utah dated October 2019 and Ben Lomond Ordinary High Water Mark Supplemental Information Dated May 22, 2020 prepared by Bio-West Consultants.

This information is sufficient for purposes of this AJD.
Rationale: N/A

☐ Data sheets prepared by the Corps: N/A

☒ Photographs: Aerial: GoogleEarth 7.3.3.7692. (1993 August 13, 2002 July 27, 2006 July 7, 8 July 2019). North Ogden, Utah. 41.289476° latitude, -111.985613° longitude, eye alt 8745 ft. Retrieved August 17, 2020, from http://www.earth.google.com

☐ Corps site visit(s) conducted on: N/A

☐ Previous Jurisdictional Determinations (AJDs or PJDs): N/A

☐ Antecedent Precipitation Tool: *provide detailed discussion in Section III.B*.

☐ USDA NRCS Soil Survey: N/A.

☐ USFWS NWI maps: N/A.

☐ USGS topographic maps: N/A.

Other data sources used to aid in this determination:

Data Source (select)	Name and/or date and other relevant information
USGS Sources	N/A.
USDA Sources	N/A.
NOAA Sources	N/A.
USACE Sources	N/A.
State/Local/Tribal Sources	USFS (23 June 1963). Name: Elk-_1-84. Project 1963 ELK. North Ogden, Utah 41.31205° latitude, -111.99251° longitude. Retrieved on August 17, 2020, from https://geodata.geology.utah.gov/imagery/
Other Sources	N/A.

B. Typical year assessment(s): N/A.

C. Additional comments to support AJD: The waters on-site flow between the ornamental ponds, ditches 1 and 2, and a drainage swale located along US-89 which bounds the project area on the west side. From then, water drains into a network of ditches that discharge into the Willard Canal, which flows into Willard Reservoir on the Great Salt Lake. The nearest potential (a)(1), (a)(2) or (a)(3) water is a canal south of the non-adjacent wetlands, and outside of the review area. The intervening area between the nearest (a)(1), (a)(2) or (a)(3) potential water is upland. Furthermore, due to the topography in the area and location, none of the non-adjacent wetlands have a hydrologic connection to the nearest potential (a)(1), (a)(2) or (a)(3) water.

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Ben Lomond Development, LLC, Attn: Mr. Douglas Palermo	File No.: SPK-2020-00042	Date: August 21, 2020

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
→	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at *http://www.usace.army.mil/cecw/pages/reg_materials.aspx* or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Nicole Fresard
Senior Project Manager
Regulatory Division
U.S. Army Corps of Engineers
1325 J Street
Room 1350
Sacramento, California 95864
Phone: (801) 295-8380 ext. 8321, FAX 916-557-7803
Email: Nicole.D.Fresard@usace.army.mil

If you only have questions regarding the appeal process you may also contact:

Thomas J. Cavanaugh
Administrative Appeal Review Officer
U.S. Army Corps of Engineers
South Pacific Division
1455 Market Street, 2052B
San Francisco, California 94103-1399
Phone: 415-503-6574, FAX 415-503-6646
Email: Thomas.J.Cavanaugh@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

Exhibit M-4

Ben Lomond Golf Course
124.7-acre Parcel
Aquatic Resources Inventory Report
Weber County, Utah



Prepared for:

Mr. William Chipman
Ben Lomond Development, LLC
51 West Center Street #644
Orem, Utah 84057

Prepared by:

BIO-WEST, Inc.
1063 West 1400 North
Logan, Utah 84321

October 2019

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1.0 INTRODUCTION 1

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APPENDIX A: WETLAND DELINEATION MAP

APPENDIX B: WETLAND DELINEATION DATA SHEETS

APPENDIX C: SOIL SURVEY MAP

APPENDIX D: SAMPLE POINT PHOTOS

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Figures

Figure 1. Survey area location map. 2

Figure 2. US Geological Survey topographic map. 3

Tables

Table 1. Plant species identified in the survey area. 7

DEFINITIONS

Depth-to-soil saturation: The depth at which the pores between soil particles are filled with water.

Drainage patterns: A network of intermittent or perennial channels formed by local geological and soil characteristics.

Hydric soils: Soils that are flooded, ponded, or saturated long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile. These conditions can develop from continuous saturation during as little as 5 percent of the growing season.

Ordinary high-water mark: On the shoreline of a body of water, the line or marking established by the fluctuations of water and indicated by physical characteristics such as a clear and natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, and/or other indicators appropriate for the surrounding area.

Waters of the United States: "All waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; All interstate waters including interstate wetlands; All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce…Wetlands adjacent to waters (other than waters that are themselves wetlands) identified above." (Definition taken from 33 CFR, Part 328.3). "Adjacent" is defined as bordering, contiguous, or neighboring.

Wetlands: "Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." (Definition taken from 33 CFR, Part 328.3).

Limits of jurisdiction in nontidal waters:

1. In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high-water mark, or

2. when adjacent wetlands are present, the jurisdiction extends beyond the ordinary high-water mark to the limit of the adjacent wetlands.

3. When the water of the United States consists only of wetlands, the jurisdiction extends to the limit of the wetland (taken from 33 CFR, Part 328.3).

1.0 INTRODUCTION

Ben Lomond Development, LLC, is conducting an evaluation of a potential development project for the Ben Lomond Golf Course. BIO-WEST, Inc., (BIO-WEST) was contracted to conduct an aquatic resources inventory of the site, which consists of a 124.7-acre parcel of land (survey area) located in Harrisville, Utah (Weber County). The survey area is adjacent to and directly east of US highway 89 (US-89) and south of west 200 North Street (Figure 1). The survey area lies within three Public Land Survey System (PLSS) sections and two different townships. The northern portion of the survey area is divided by sections 31 and 32 in township 7 North, Range 1 West; and the southern portion lies within Section 1 of Township 6 North, Range 1 West. The project is approximately centered on GPS coordinates 41.292399° N latitude, and -111.989164° W longitude (Figure 2).

2.0 METHODS

An aquatic resources inventory survey was conducted by BIO-WEST on August 13, 2019, to delineate wetlands and surface water boundaries. Wetland boundaries were identified in accordance with the *US Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). In addition, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Research and Development 2008) was used for regional specificity. In areas where one or more wetland parameters may have been absent or misleading, mapping was completed using mainly soil characteristics, depression landscape position, remnant hydrophytic vegetation, and/or persistent hydrological indicators, as specified by the manual.

Sample points were established within the survey area to examine and record existing conditions. These sample points were established as pairs when possible, with one sample point representing the wetland and the other representing the upland. Existing hydrological, soil, and vegetative conditions were examined and recorded at all sample points. Wetland boundaries were delineated based on observations at each sample point (Appendix A).

Vegetative species and their relative abundances were recorded by BIO-WEST personnel in the vicinity of each sample point using Arid West Region Wetland Delineation Forms (Appendix B) according to procedures outlined in the *US Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). Vegetative strata were used to determine the sampling-plot radius using the sampling point as the center. Trees and woody vines within a 50-foot radius of each sample point were recorded. Saplings, shrubs, and herbaceous vegetation within a 5-foot radius of each sample point were recorded. Those plant species considered dominant within each stratum were used to determine wetland or upland classification. Species comprising 20 percent or more of the total areal cover per stratum were considered dominant, following the guidelines of the US Army Corps of Engineers (USACE) 50/20 rule (Environmental Laboratory 1987). The wetland-indicator status of dominant plants were noted according to the USACE's *North American Digital Flora: National Wetland Plant List* (Lichvar et al. 2016). The vegetation-indicator status estimates the probability of a particular plant species occurring in wetland environments. Of the dominant plant species recorded, more than 50 percent must have a vegetation-indicator status of facultative (34–66 percent probability of occurring in wetlands), facultative wetland (67–99 percent probability of occurring in wetlands),

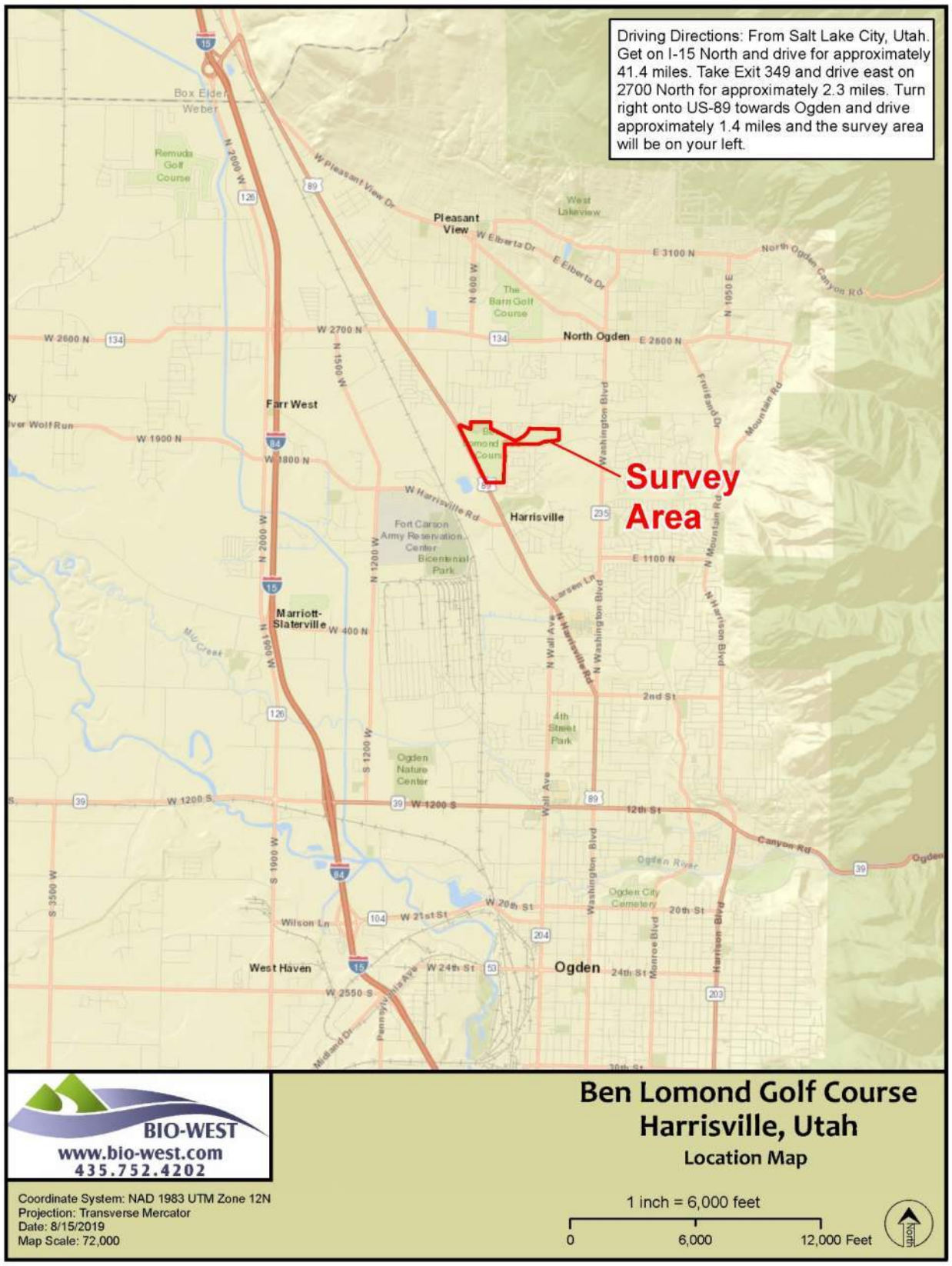


Figure 1. Survey area location map.

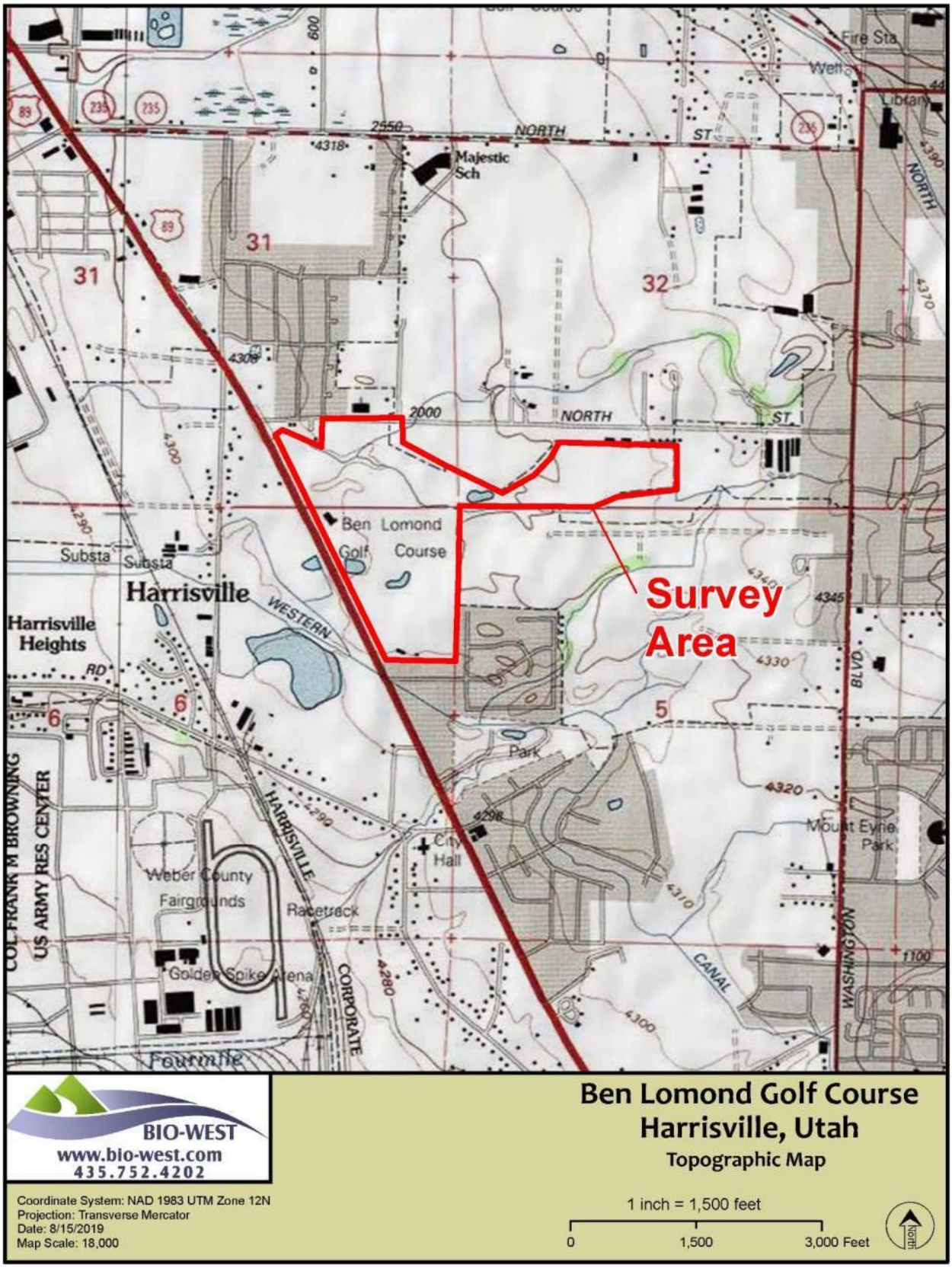


Figure 2. US Geological Survey topographic map.

or obligate wetland (more than 99 percent probability of occurring in wetlands) for a sample point to be classified as having hydrophytic vegetation for wetland delineation purposes.

The presence or absence of hydrological indicators was examined and recorded at each sample point. The determination of wetland hydrology was based on the presence of at least one positive primary indicator or two positive secondary indicators of a prolonged period of saturation. Primary indicators include surface water, high water table, saturation, watermarks (nonriverine), debris deposits (nonriverine), sediment deposits (nonriverine), surface soil cracks, inundation visible on aerial imagery, water-stained leaves, salt crust, biotic crust, aquatic invertebrates, hydrogen sulfide odor, oxidized rhizospheres along living roots, and the presence of reduced iron or recent iron reduction in plowed soils. Secondary indicators include watermarks (riverine), sediment deposits (riverine), drift deposits (riverine), drainage patterns, dry-season water table, thin muck surface, crayfish burrows, saturation visible on aerial imagery, shallow aquitard, and hydrophytic results from the facultative-neutral test. Environmental changes and the topographic position of the sample points relative to observed water table were also noted.

Soil profiles and soil/water conditions were characterized by digging and assessing soil pits at each sample point to a depth of at least 18 inches (if possible). At least one positive hydric soil indicator was required at each sample point to classify a soil as hydric. For example, soils in prolonged anaerobic conditions undergo chemical reduction, thereby producing lighter soil colors. During the field survey, the colors of the soil profile matrix and mottles were identified using Munsell soil color charts (Kollmorgen Instruments 1990). Soil horizon, texture, moisture content, and depth-to-soil saturation and/or standing water were noted. The presence or absence of particulate organic matter, organic matter staining, concretions, mottling, and gleying was also noted.

Standard wetland delineation procedures require the comparison of soil profiles observed in the field with the soil descriptions referenced in the Natural Resource Conservation Service (NRCS) Soil Survey (USDA NRCS 2019). The Davis-Weber Area, Utah, soil survey was accessed using the NRCS Web Soil Survey website (USDA NRCS 2019) and referenced during the survey area visit (Appendix C).

Thirteen sample points were established to characterize existing hydrologic, soil, and vegetative conditions in the survey area. Sample point photographs were taken during the survey area visit (Appendix D). Wetland boundaries were determined using sample points and vegetative communities. The approximate locations of delineated wetland boundaries and sample points were surveyed using a submeter-accurate GPS. The survey data were downloaded into a GIS program to produce mapping (Appendix A) that shows the delineated wetland boundaries, estimated wetland acreage, and sample point locations.

3.0 GENERAL SURVEY AREA CONDITIONS

The survey area was inspected on August 13, 2019, when typical summer conditions were encountered. Vegetation was growing, visible, and identifiable. The survey area is the site of the Ben Lomond Golf Course, which has recently closed after being in operation for 62 years (Standard-Examiner 2019). The survey area vicinity has transitioned from past agricultural use to current residential use. The majority of the survey area consisted of fairways and putting greens

planted with sod grass for recreational golfing, and sparse, ornamental trees and shrubs with nonnative grass understory lining the fairways. An old clubhouse and parking area were situated in the western portion of the survey area, adjacent to US-89. There were also maintenance buildings situated in the southern portion of the survey area. Past disturbance from golf course maintenance activities was evident and several spoil piles had been placed throughout the site. Several open water ponds were situated within the survey area that were created as ornamental features associated with the golf course. Two irrigation ditches drain through the survey area from east to west. The ditches contained flowing water at the time of survey area inspection. In addition, a small irrigation ditch was connected to one of the open water features. A large stormwater detention basin built for flood control within Harrisville City's Millennium Park was situated in the northern section of the survey area. The survey area vegetation communities consist of palustrine emergent wetlands growing on the pond margins, adjacent to irrigation ditches, within low swales, and on the lowest portion of the detention basin, golf course fairways planted with sod grass, ornamental trees and shrubs, and areas dominated by nonnative weeds and pasture grasses that have colonized the site in its fallow condition. The US Geological Survey topographic map illustrates two unnamed blue-line streams crossing a portion of the survey area.

4.0 WETLAND INVESTIGATION FINDINGS

Of the 124.70 acres investigated, 119.03 acres were identified as uplands, 1.86 acres were identified as palustrine emergent wetlands, 0.38 acres were identified as palustrine emergent pond fringe wetlands, 2.87 acres were identified as open water pond, and 0.56 acre (3,086 linear feet) were identified as irrigation ditch (Appendix A).

Wetland A, Wetland B, Wetland D, and Wetland E were characterized as palustrine emergent wetlands and either encompassed low drainage swales, were adjacent to irrigation ditches, or were within the storm water detention basin. Wetland A comprises a portion of the large detention basin in the northern portion of the survey area. The lowest elevations within the detention basin were dominated by emergent wetland plants. The detention basin appeared to have been constructed for flood control for the residential community to the north, and collects stormwater discharged from a grated outflow pipe buried underneath 2000 North Street. Stormwater appears to pond in the low area of the detention basin. A grated inflow pipe drains stormwater from the detention basin and stagnant surface water was visible in the inflow pipe at the time of the site inspection. The hydrology of the detention basin is also supported by the locally high-water table. Wetland B is situated within a low drainage swale that receives surface water drainage from one of the old golf course ponds. The low swale may have been a drainage ditch with a more defined channel at some point in the past, but it had become overgrown by emergent wetland vegetation. The US-89 road prism appears to have created a damming effect, preventing surface water from effectively draining through this area. Wetland D is situated adjacent to an irrigation ditch in the northern portion of the survey area. The vegetation was a mix of herbaceous emergent vegetation typically found in wetlands and some riparian shrubs, including narrowleaf willow (*Salix exigua*). The source of hydrology for Wetland D appeared to be the locally high water table, which was augmented by seasonal over-bank flows and groundwater seepage from the adjacent irrigation ditch. Wetland E is a small palustrine emergent wetland dominated by a mix of Kentucky bluegrass (*Poa pratensis*) and meadow false rye grass (*Schedonorus pratensis*), with some Eastern cottonwood (*Populus deltoides*) trees growing along

an irrigation ditch. The wetland is situated in a small low depression that appears to collect seasonal overbank flooding from the adjacent ditch at times of high flow. Wetlands C and F are characterized as palustrine emergent pond fringe wetlands. They consisted of emergent wetland vegetation, including cattail (*Typha latifolia*), which readily colonizes low banks and shallow pond edges. At Wetland F, some riparian trees and shrubs are growing with the herbaceous wetland vegetation. The pond fringe wetlands were supported by surface water from the golf course ponds.

In addition to the palustrine emergent wetlands, the survey area contained several non-wetland surface waters. Five separate human-made open-water ponds were situated within the survey area. The ponds were built as ornamental features associated with the golf course. Several irrigation ditches convey surface water flows from east to west across the survey area.

4.1 Vegetation

Plant communities found in the survey area included palustrine emergent wetlands, golf course fairways planted with sod grass, ornamental trees and shrubs, and areas dominated by nonnative weeds and pasture grasses. The palustrine emergent wetlands were primarily dominated by a variable herbaceous understory of reed canary grass (*Phalaris arundinacea*), cattail, common spike-rush (*Eleocharis palustris*), Nebraska sedge (*Carex nebrascensis*), straw-grain sedge (*Carex stipata*), and western Canada goldenrod (*Solidago lepida*). Some of the palustrine emergent wetlands also contained a sparse overstory of trees and shrubs, which included Eastern cottonwood, narrowleaf willow, yellow willow (*Salix lutea*), and Russian olive (*Elaeagnus angustifolia*) growing along the pond margins and drainages. Below is a list of plant species observed in the survey area (Table 1).

4.2 Soils

Soils were examined in the field during the survey area visit. The soils encountered were primarily clay or loam, with some sandy soils observed along the drainages. The NRCS Soil Survey (USDA NRCS 2019) of the survey area was reviewed and used as a reference while on site (Appendix C). The soil types mapped within the survey area are the Harrisville silt loam, 0 to 1 percent slopes (HaA), Harrisville silt loam, 1 to 3 percent slopes (HaB), Harrisville-Leland complex, 0 to 1 percent slopes (HLA), Kidman fine sandy loam, 1 to 3 percent slopes (KaB), Logan silty clay loam, 0 to 3 percent slopes (Lt), Logan silty clay loam, shallow water table, 0 to 3 percent slopes (Lw), NOTCOM – No Digital Data Available, and Woods Cross silty clay loam, 0 to 3 percent slopes (Ws). The KaB, Lt, Lw, and Ws soil types are listed by the NRCS as hydric soils in Utah (USDA NRCS 2019).

The NRCS (USDA NRCS 2019) provides the following soil series descriptions:

> The Harrisville series consists of very deep, somewhat poorly drained or moderately well drained soils that formed in alluvium and lacustrine deposits derived from mixed rocks. Harrisville soils are on low lake terraces. Slopes are 0 to 6 percent. Harrisville soils are used for rangeland, irrigated cropland, and urban development. Irrigated areas are used for growing alfalfa, small grains, sugar beets,

Table 1. Plant species identified in the survey area.

COMMON NAME	SCIENTIFIC NAME	INDICATOR STATUS [a]
barnyard grass	*Echinochloa cris-galli*	FACW
broad-leaf cat-tail	*Typha latifolia*	OBL
Canadian thistle	*Cirsium arvense*	FAC
cheatgrass	*Bromus tectorum*	UPL
common dandelion	*Taraxacum officinale*	FACU
common reed	*Phragmites australis*	FACW
common spike-rush	*Eleocharis palustris*	OBL
curly dock	*Rumex crispus*	FAC
Dyer's woad	*Isatis tinctoria*	UPL
eastern cottonwood	*Populus deltoides*	FAC
Freemont's cottonwood	*Populus fremontii*	FAC
Fuller's teasel	*Dipsacus fullonum*	FAC
hard-stem club-rush	*Schoenoplectus acutus*	OBL
intermediate wheatgrass	*Thinopyrum intermedium*	UPL
Kentucky bluegrass	*Poa pratensis*	FAC
meadow false rye grass	*Schedonorus pratensis*	FACU
narrow-leaf cottonwood	*Salix exigua*	FACW
Nebraska sedge	*Carex nebrascensis*	OBL
prickly lettuce	*Lactuca serriola*	FACU
red clover	*Trifolium pratense*	FACU
reed canary grass	*Phalaris arundinacea*	FACW
Russian-olive	*Elaeagnus angustifolia*	FAC
stalk-grain sedge	*Carex stipata*	OBL
Virginia creeper	*Parthenocissus quinquefolia*	FAC
weeping willow	*Salix babylonica*	FAC
western Canada goldenrod	*Solidago lepida*	FAC
white clover	*Trifolium repens*	FAC
whitetop	*Cardaria draba*	UPL
yard knotweed	*Polygonum aviculare*	FAC
yellow willow	*Salix lutea*	OBL

[a] FAC=facultative species, FACU=facultative upland species, FACW=facultative wetland species, OBL=obligate wetland species, UPL=upland species.

and improved pasture. The native vegetation in rangeland is mainly Sandberg's bluegrass (*Poa secunda*), inland saltgrass (*Distichlis spicata*), foxtail (*Hordeum* sp., gumweed (*Grindelia squarrosa*), peppergrass (*Lepidium* sp.), black greasewood (*Sarcobatus vermiculatus*), and Wyoming big sagebrush (*Artemisia tridentata*).

The Kidman series consists of very deep, well drained or moderately well drained soils that formed in alluvium or lacustrine deposits derived from quartzite, sandstone, granite, limestone, and gneiss. Kidman soils are on alluvial fans, fan remnants, stream terraces, and lake terraces. Slopes are 0 to 40 percent. Kidman soils are used mainly for irrigated cropland. The major crops are alfalfa, sugar beets, small grains, tomatoes, asparagus, corn, and irrigated pasture. Potential vegetation in rangeland is mountain big sagebrush, Wyoming big sagebrush, bluebunch

wheatgrass (*Psuedoregnaria spicata*), and western wheatgrass (*Pascopyrum smithii*).

The Logan series consists of very deep, poorly drained, slowly permeable soils. These soils formed in alluvium and lake sediments from many kinds of rocks, but dominantly from quartzite, sandstone, and limestone gneiss on flood plains, low smooth undulating lake terraces, and stream terraces. Slopes range from 0 to 3 percent. Logan soils are used for meadow hay and pasture. The native vegetation is mainly saltgrass, rushes (*Juncus* sp.), bluegrass (*Poa pratensis*), and meadow foxtail (*Alopecurus pratensis*).

The Woods Cross series consists of very deep, poorly drained soils that formed in alluvium and lake sediments derived from gneiss, schist, granite, quartzite and sandstone. These soils are on smooth to slightly undulating, nearly level to gently sloping, broad alluvial fans and flood plains. Slopes are 0 to 3 percent. These soils are largely used for meadow hay and pasture. Some areas have been drained and are used for general crops under irrigation. The native vegetation is mostly wiregrass (*Juncus* sp.), sedges (*Carex* sp.) and saltgrass.

The NOTCOM map unit symbol is a modifier used by the NRCS when no data is available for a specific area. The NOTCOM map unit symbol overlays the southern portion of the survey area.

The palustrine emergent wetlands exhibited soils that were grey-to-black loam and clay with distinct redoxomorphic features, which are indicative of prolonged periods of flooding and soil saturation. The specific hydric soil indicator met at the wetland sample points was a depleted matrix.

Soils at the upland sample points were mostly dark grayish brown-to-brown loam and clay that was dry and blocky. Some of the soils at the upland sample points contained depleted layers and redoxomorphic features. These sample points were either located in a marginal area within the detention basin or were dug in spoil piles from ditch or pond excavation. These areas lacked one or more of the three parameters necessary to meet the wetland criteria and the hydric soil indicators observed appeared to be relic.

4.3 Hydrology

The survey area hydrology appears to be influenced by a locally high groundwater table, over-bank flows and lateral groundwater seepage from irrigation ditches, and the wetted perimeter of the pond margins. The wetland sample points exhibited primary wetland hydrology indicators including soil saturation, high water table, biotic crust, and surface-soil cracks, and secondary wetland hydrology indicators including water marks, drift deposits, and drainage patterns. None of the upland sample points conducted within the survey area contained wetland hydrology indicators.

The human-made golf course ponds all contained standing water. These open-water habitats receive water from various irrigation ditches diverted into a system of pipes buried beneath the golf course. It appears that the ponds are all connected by the underground pipes. Some of the human-made ponds had banks constructed of concrete blocks rising vertically from the edge of open-water and did not support a wetland fringe.

The irrigation ditches all contained flowing water at the time of the site inspection. Segments of the irrigation ditches are piped under golf cart paths and portions of fairways. The northern ditch is the main ditch, conveying the highest flows in the survey area, and this ditch likely captures water discharged from the detention basin. A portion of the ditch backwaters into an adjacent channel and is piped underground before daylighting in the northwestern portion of the survey area. An irrigation ditch enters the survey area from the east and eventually empties into the northern ditch. These ditches are represented as unnamed blue line streams on the USGS topographic map for the survey area. Another small irrigation ditch daylights on the southeast side of one of the human-made ponds in the eastern section of the survey area. All of the irrigation ditches within the survey area exhibited indicators of an ordinary high-water mark (OHWM).

The US Fish and Wildlife Service's National Wetlands Inventory (NWI) illustrates Palustrine Aquatic Bed Intermittently Exposed Excavated (PABGx), Palustrine Emergent Persistent Seasonally Flooded (PEM1C), and Riverine Intermittent Streambed Seasonally Flooded (R4SBC) wetlands within the survey area (Appendix E) (USFWS 2019). The NWI is mostly consistent with the survey area results. The PABGx and PEM1C wetlands coincide with some of the ponds and wetlands mapped within the survey area. However, there are no NWI wetlands situated in the vicinity of Wetland D, Wetland A, or the two ponds in the eastern portion of survey where Wetland F was mapped. In addition, the northern ditch is represented as a PEM1C wetland on the NWI. The differences in the survey area results and the NWI indicate changes in water delivery and land use since the NWI was mapped.

5.0 DELINEATION SUMMARY AND CONCLUSIONS

During the survey area investigation, 1.86 acres of palustrine emergent wetlands, 0.38 acre of palustrine emergent pond fringe wetlands, 2.87 acres of open-water pond, and 0.56 acre (3,086 linear feet) of irrigation ditch were delineated within the survey area. The remaining 119.03 acres of land was classified as upland (Appendix A). The wetlands and surface waters all seem to be connected by underground pipes, culverts, or are connected by adjacency. Surface water draining from the wetlands and non-wetland waters within the survey either flows into the north ditch or the low drainage swale that comprises Wetland B. The north ditch and Wetland B appear to drain into culverts underneath US-89 and into a network of irrigation/drainage ditches that eventually empty into the Willard Canal, which flows into Willard Reservoir on the Great Salt Lake. Therefore, the wetlands and surface waters identified within the survey area will likely be considered Jurisdictional by the USACE. The USACE has the final decision over determining whether a jurisdictional waterbody or wetland is present within a survey area.

6.0 REFERENCES CITED

Environmental Laboratory. 1987. US Army Corps of Engineers wetlands delineation manual. Vicksburg (MS): US Army Waterways Experiment Station. Technical Report Y-87-1.

[Kollmorgen Instruments] Kollmorgen Instruments Corporation. 1990. Munsell soil color charts. Revised 2000. New Windsor (NY): Kollmorgen Instruments Corporation.

Lichvar, R.W., D.L. Banks, N.C. Melvin, and W.N. Kirchner. 2016. US Army Corps of Engineers North American Digital Flora: National Wetlands Plant List, (https://wetland_plants.usace.army.mil). Hanover (NH): US Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory; and Chapel Hill (NC): BONAP.

Standard-Examiner. 10/1/2019. Development plans laid for old Ben Lomond Golf Course. Location: https://www.standard.net/news/government/development-plans-laid-for-old-ben-lomond-golf-course/article_80a5301d-0db1-5567-ac66-0923c2ba2652.html

[Research and Development] US Army Engineer Research and Development Center. 2008. Regional supplement to the Corps of Engineers wetland delineation manual: arid west region. Hanover (NH): US Army Engineer Research and Development Center. 93 p. plus appendices.

[USDA NRCS] US Department of Agriculture, Natural Resources Conservation Service, Soil Survey Staff. 09/17/19. Official soil series descriptions. Location: https://soilseries.sc.egov.usda.gov/osdname.asp

[USFWS] US Fish and Wildlife Service. 09/17/2019. National Wetlands Inventory website. Location: http://www.fws.gov/wetlands/.

APPENDIX A: WETLAND DELINEATION MAP AND AQUATIC RESOURCES SPREADSHEET



Ben Lomond Golf Course Harrisville, Utah

Aquatic Resources Survey

Legend

- Sample Point
- Irrigation Ditch
- Pond
- Emergent Wetland Pond Fringe
- Emergent Wetland
- Survey Area

Wetlands

A = 1.47 acres
B = 0.05 acre
C = 0.19 acre
D = 0.30 acre
E = 0.04 acre
F = 0.19 acre

Survey Area Summary
Irrigation Ditch = 0.56 acre / 3,086 lf Pond = 2.87 acres Emergent Wetland Pond Fringe = 0.38 acre Emergent Wetland = 1.86 acres
Upland = 119.03 acres
Total Survey Area = 124.70 acres

North

1 inch = 350 feet

0 350 700 Feet

Coordinate System: NAD 1983 UTM Zone 12N
Projection: Transverse Mercator
Date: 8/15/2019
Map Scale: 4,200

BIO-WEST
www.bio-west.com
435.752.4202

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
Wetland A	UTAH	PEM	DEPRESS	Area	1.47	ACRE	RPWWN	41.29412300	-111.99063400	Willard Canal
Wetland B	UTAH	PEM	DEPRESS	Area	0.05	ACRE	RPWWN	41.28956900	-111.99091800	Willard Canal
Wetland C	UTAH	PEM	LACUSTRINF	Area	0.19	ACRE	RPWWD	41.28950800	-111.98847100	Willard Canal
Wetland D	UTAH	PEM	RIVERINE	Area	0.3	ACRE	RPWWD	41.29878200	-111.98834500	Willard Canal
Wetland E	UTAH	PEM	RIVERINE	Area	0.04	ACRE	RPWWD	41.29191800	-111.98635700	Willard Canal
Wetland F	UTAH	PEM	LACUSTRINF	Area	0.19	ACRE	RPWWD	41.29230200	-111.98068400	Willard Canal
Pond	UTAH	PAB	LACUSTRINF	Area	2.87	ACRE	RPW	41.29231000	-111.98512800	Willard Canal
Irrigation Ditch	UTAH	R4	RIVERINE	Linear	3086	FOOT	RPW	41.29390500	-111.99013300	Willard Canal

APPENDIX B: WETLAND DELINEATION DATA SHEETS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Ben Lomond Golf Course 124-Acres City/County: Harrisville City, Weber Co. Sampling Date: 08/13/2019

Applicant/Owner: Ben Lomond Golf Course State: UT Sampling Point: 1

Investigator(s): B. Thomas and A. Crookston Section, Township, Range: Section 6, Township 6 North, Range 1 West

Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D Lat: 41.28970047 Long: -111.99082354 Datum: WGS 84

Soil Map Unit Name: none NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50'R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix babylonica	10	Y	FAC
2. Populus fremontii	10	Y	FAC
3.			
4.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5'R)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5'R)			
1. Schedonorus pratensis	90	Y	FACU
2. Poa pratensis	10	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 50'R)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 4/2	100					loam	
6-12	10 YR 4/2	100					loam	40 % gravel (dry)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard rock gravel

Depth (inches): 12"

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Ben Lomond Golf Course 124-Acres City/County: Harrisville City, Weber Co. Sampling Date: 08/13/2019

Applicant/Owner: Ben Lomond Golf Course State: UT Sampling Point: 2

Investigator(s): B. Thomas and A. Crookston Section, Township, Range: Section 6, Township 6 North, Range 1 West

Landform (hillslope, terrace, etc.): drainage Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): D Lat: 41.28968960 Long: -111.99087077 Datum: WGS 84

Soil Map Unit Name: none NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50'R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Elaeagnus angustifolia	10	Y	FAC
2.			
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5'R)			
1.	35	Y	OBL
2.	10	N	FAC
3.	10	N	NL
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5'R)			
1. Typha latifolia	35	Y	OBL
2. Carex stipata	25	Y	OBL
3. Solidago lepida	20	Y	FAC
4. Thinopyrum intermedium	10	N	UPL
5. Dipsacus fullonum	10	N	FAC
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 50'R)			
1. Parthenocissus quinquefolia	15	Y	FAC
2.			
	15 = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					loam	dense root mat
4-10	10 YR 4/1	95	10 YR 5/3	5	RM	M	loam	
10-19	10 YR 5/1	70	10 YR 4/3	30	C	M	clay	moist

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ✓ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ✓ Drift Deposits (B3) **(Riverine)**
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Ben Lomond Golf Course 124-Acres City/County: Harrisville City, Weber Co. Sampling Date: 08/13/2019

Applicant/Owner: Ben Lomond Golf Course State: UT Sampling Point: 3

Investigator(s): B. Thomas and A. Crookston Section, Township, Range: Section 6, Township 6 North, Range 1 West

Landform (hillslope, terrace, etc.): pond edge Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): D Lat: 41.28934880 Long: -111.98841865 Datum: WGS 84

Soil Map Unit Name: none NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50'R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5'R)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5'R)			
1. Typha latifolia	50	Y	OBL
2. Eleocharis palustris	30	Y	OBL
3. Phalaris arundinacea	20	Y	FACW
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 50'R)			
1. none			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 4/1	60	10 YR 7/3	30	RM	M	clay	saturated
0-6			10 YR 5/6	10	C	M	clay	saturated
6-23	10 YR 4/1	95	10 YR 6/2	5	D	M	clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No ___ Depth (inches): 21" (rising)

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): surface

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Ben Lomond Golf Course 124-Acres City/County: Harrisville City, Weber Co. Sampling Date: 08/13/2019

Applicant/Owner: Ben Lomond Golf Course State: UT Sampling Point: 4

Investigator(s): B. Thomas and A. Crookston Section, Township, Range: Section 6, Township 6 North, Range 1 West

Landform (hillslope, terrace, etc.): berm Local relief (concave, convex, none): convex Slope (%): 1

Subregion (LRR): D Lat: 41.28931042 Long: -111.98840418 Datum: WGS 84

Soil Map Unit Name: none NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 50'R)			
1. Elaeagnus angustifolia	15	Y	FAC
2.			
3.			
4.			
	15 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5'R)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5'R)			
1. Poa pratensis	70	Y	FAC
2. Trifolium pratense	15	N	FACU
3. Schedonorus pratensis	10	N	FACU
4. Taraxacum officinale	10	N	FACU
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 50'R)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 4/6	60	10 YR 4/2	30	D	M	clay	dry - blocky structure
0-10			10 YR 8/2	10	D	M		
10-20	10 YR 5/3	90	10 YR 4/4	10	C	M	clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Marginal - possibly some sort of relic wetland soil, perhaps from digging the pond.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Ben Lomond Golf Course 124-Acres City/County: Harrisville City, Weber Co. Sampling Date: 08/13/2019

Applicant/Owner: Ben Lomond Golf Course State: UT Sampling Point: 5

Investigator(s): B. Thomas and A. Crookston Section, Township, Range: Section 32, Township 7 North, Range 1 West

Landform (hillslope, terrace, etc.): pond fringe Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): D Lat: 41.29237106 Long: -111.98085645 Datum: WGS 84

Soil Map Unit Name: Harrisville silt loam, 0 to 1 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50'R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus deltoides	20	Y	FAC
2. Elaeagnus angustifolia	20	Y	OBL
3. Salix lutea	15	Y	FAC
4.			
	55	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5'R)			
1.			
2.			
3.			
4.			
5.			
	_____	= Total Cover	
Herb Stratum (Plot size: 5'R)			
1. Phragmites australis	85	Y	FACW
2. Eleocharis palustris	10	N	OBL
3. Poa pratensis	5	N	FAC
4.			
5.			
6.			
7.			
8.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 50'R)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 2/1	100					loam	lots of rocks
6-12	10 YR 4/1	85	10 YR 4/6	15	C	PL	sand	fine sand
12-23	10 YR 2/1	90	10 YR 5/2	10	D	M	clay	wet and sticky

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ✓ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No ___ Depth (inches): 22

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 9

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Ben Lomond Golf Course 124-Acres City/County: Harrisville City, Weber Co. Sampling Date: 08/13/2019

Applicant/Owner: Ben Lomond Golf Course State: UT Sampling Point: 6

Investigator(s): B. Thomas and A. Crookston Section, Township, Range: Section 32, Township 7 North, Range 1 West

Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D Lat: 41.29243080 Long: -111.98089842 Datum: WGS 84

Soil Map Unit Name: Harrisville silt loam, 0 to 1 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50'R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5'R)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5'R)			
1. Poa pratensis	75	Y	FAC
2. Polygonum aviculare	25	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 50'R)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 4/2	100					loam	lots of roots
4-14	10 YR 4/3	70	10 YR 4/1	30	C	M	clay	
14-20	10 YR 2/1	100					loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Ben Lomond Golf Course 124-Acres City/County: Harrisville City, Weber Co. Sampling Date: 08/13/2019

Applicant/Owner: Ben Lomond Golf Course State: UT Sampling Point: 7

Investigator(s): B. Thomas and A. Crookston Section, Township, Range: Section 6, Township 6 North, Range 1 West

Landform (hillslope, terrace, etc.): low spot next to ditch Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): D Lat: 41.29189563 Long: -111.98626319 Datum: WGS 84

Soil Map Unit Name: Harrisville silt loam, 1 to 3 percent slopes NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50'R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus deltoides	20	Y	FAC
2.			
3.			
4.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5'R)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5'R)			
1. Schedonorus pratensis	80	Y	FACU
2. Poa pratensis	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 50'R)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 4/2	100					loam	
5-10	10 YR 4/1	95	10 YR 6/2	5	D	M	loam	
10-20	10 YR 2/1	70	10 YR 4/2	30	D	M	clay	
20-24	10 YR 6/1	100					clay	sticky

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ✓ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ✓ No ___ Depth (inches): 20"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 14"

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Ben Lomond Golf Course 124-Acres City/County: Harrisville City, Weber Co. Sampling Date: 08/13/2019

Applicant/Owner: Ben Lomond Golf Course State: UT Sampling Point: 8

Investigator(s): B. Thomas and A. Crookston Section, Township, Range: Section 6, Township 6 North, Range 1 West

Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D Lat: 41.29185493 Long: 111.98626489 Datum: WGS 84

Soil Map Unit Name: Harrisville silt loam, 1 to 3 percent slopes NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50'R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5'R)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5'R)			
1. Poa pratensis	90	Y	FAC
2. Schedonorus pratensis	10	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 50'R)			
1. none			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 4/3	100					loam	
10-18	10 YR 4/3	80	10 YR 6/3	20	D	M	loam	very dry and blocky

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Possibly relic hydric soil from golf course construction.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Ben Lomond Golf Course 124-Acres City/County: Harrisville City, Weber Co. Sampling Date: 08/13/2019

Applicant/Owner: Ben Lomond Golf Course State: UT Sampling Point: 9

Investigator(s): B. Thomas and A. Crookston Section, Township, Range: Section 31, Township 7 North, Range 1 West

Landform (hillslope, terrace, etc.): fill Local relief (concave, convex, none): convex Slope (%): 4

Subregion (LRR): D Lat: 41.29271299 Long: -111.98825076 Datum: WGS 84

Soil Map Unit Name: Logan silty clay loam, shallow water table, 0 to 3 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50'R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5'R)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5'R)			
1. Cirsium arvense	10	N	FACU
2. Cardaria draba	35	Y	UPL
3. Bromus tectorum	35	Y	UPL
4. Rumex crispus	10	N	FAC
5. Lactuca serriola	10	N	FACU
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: 50'R)			
1. none			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Soil sample collected from a mixed pile of fill material. The point was on a mound about five feet higher than the wetland.

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10 YR 5/2	90	10 YR 4/4	10			clay	dry, blocky

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soil pit conducted on a mound of fill that is approx. 5 feet higher in elevation than the surrounding low area. Wetland soils within the fill appear relic.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): ___

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sample point was on a dump fill site with wood, concrete, and rock present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Ben Lomond Golf Course 124-Acres City/County: Harrisville City, Weber Co. Sampling Date: 08/13/2019

Applicant/Owner: Ben Lomond Golf Course State: UT Sampling Point: 10

Investigator(s): B. Thomas and A. Crookston Section, Township, Range: Section 31, Township 7 North, Range 1 West

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): D Lat: 41.29270931 Long: -111.98832088 Datum: WGS 84

Soil Map Unit Name: Logan silty clay loam, shallow water table, 0 to 3 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50'R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5'R)			
1. Salix exigua	25	Y	FACW
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5'R)			
1. Phalaris arundinacea	50	Y	FACW
2. Cirsium arvense	20	Y	FACU
3. Carex nebrascensis	20	Y	OBL
4. Schenoplectus acutus	10	N	OBL
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 50'R)			
1. none			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 4/1	95	10 YR 6/2	5	D	M	clay	moist
8/18	10 YR 4/1	70	10 YR 6/1	30	D	M	clay	saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ✓ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No ___ Depth (inches): 11

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 9

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Ben Lomond Golf Course 124-Acres City/County: Harrisville City, Weber Co. Sampling Date: 08/13/2019

Applicant/Owner: Ben Lomond Golf Course State: UT Sampling Point: 11

Investigator(s): B. Thomas and A. Crookston Section, Township, Range: Section 31, Township 7 North, Range 1 West

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): D Lat: 41.29416342 Long: -111.99387190 Datum: WGS 84

Soil Map Unit Name: Logan silty clay loam, 0 to 3 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50'R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5'R)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5'R)			
1. Dipsacus fullonum	65	Y	FAC
2. Rumex crispus	15	N	FAC
3. Cardaria draba	10	N	UPL
4. Lactuca serriola	5	N	FACU
5. Isatis tinctoria	5	N	UPL
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 50'R)			
1. none			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 4/2	100					loam	dry
14-18	10 YR 3/1	100					loam	dry and blocky

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Ben Lomond Golf Course 124-Acres City/County: Harrisville City, Weber Co. Sampling Date: 08/13/2019

Applicant/Owner: Ben Lomond Golf Course State: UT Sampling Point: 12

Investigator(s): B. Thomas and A. Crookston Section, Township, Range: Section 31, Township 7 North, Range 1 West

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): D Lat: 41.29388279 Long: -111.99079882 Datum: WGS 84

Soil Map Unit Name: Harrisville silt loam, 1 to 3 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Sample point conducted within a storm water detention basin, located in a marginal area where the wetland vegetation transitions to a manicured lawn.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50'R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5'R)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5'R)			
1. Poa pratensis	85	Y	FAC
2. Trifolium repens	15	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 50'R)			
1. none			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/2	100					loam	dry
6-18	10 YR 3/2	90	10 YR 4/3	10	C	M	clay	dry and blocky

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators observed within this portion of the detention basin. Storm water appears to empty through storm water inlet pipe before surface water is able to pond in this area.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Ben Lomond Golf Course 124-Acres City/County: Harrisville City, Weber Co. Sampling Date: 08/13/2019

Applicant/Owner: Ben Lomond Golf Course State: UT Sampling Point: 13

Investigator(s): B. Thomas and A. Crookston Section, Township, Range: Section 31, Township 7 North, Range 1 West

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): D Lat: 41.29383358 Long: -111.99076987 Datum: WGS 84

Soil Map Unit Name: Harrisville silt loam, 1 to 3 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Stormwater detention basin. Mowed but wet for significant portion of the year.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 50'R)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5'R)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5'R)			
1. Eleocharis palustris	50	Y	OBL
2. Echinochloa crus-galli	30	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 50'R)			
1. none			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					loam	lots of roots
4-14	10 YR 3/2	70	10 YR 5/6	30	C	M	clay	
14-24	10 YR 3/1	90	10 YR 4/4	10	C	M	clay	saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ✓ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 20"

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX C: SOIL SURVEY MAP

Soil Map—Davis-Weber Area, Utah
(Ben Lomond Golf Course)



Map Scale: 1:8,020 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 100 200 400 600

Feet
0 350 700 1400 2100

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Davis-Weber Area, Utah
Survey Area Data: Version 12, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 3, 2013—Nov 8, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HaA	Harrisville silt loam, 0 to 1 percent slopes	22.3	17.9%
HaB	Harrisville silt loam, 1 to 3 percent slopes	18.8	15.1%
HLA	Harrisville-Leland complex, 0 to 1 percent slopes	1.9	1.5%
KaB	Kidman fine sandy loam, 1 to 3 percent slopes	0.3	0.2%
Lt	Logan silty clay loam, 0 to 3 percent slopes	15.1	12.1%
Lw	Logan silty clay loam, shallow water table, 0 to 3 percent slopes	12.1	9.7%
NOTCOM	No Digital Data Available	53.9	43.2%
Ws	Woods Cross silty clay loam, 0 to 3 percent slopes	0.5	0.4%
Totals for Area of Interest		**124.8**	**100.0%**

APPENDIX D: SAMPLE POINT PHOTOS



Photo 1. Sample Point 1.



Photo 2. Close-up of sample point 1 soil pit.



Photo 3. Sample point 2.



Photo 4. Close-up of sample point 2 soil pit.



Photo 5. Sample Point 3.



Photo 6. Close-up of sample point 3 soil pit.



Photo 7. Sample point 4.



Photo 8. Close-up of sample point 4 soil pit.



Photo 9. Sample point 5.



Photo 10. Close-up of sample point 5 soil pit.



Photo 11. Sample point 6.



Photo 12. Close-up of sample point 6 soil pit.



Photo 13. Sample point 7.



Photo 14. Close-up of sample point 7 soil pit.



Photo 15. Sample point 8



Photo 16. Close-up of sample point 8 soil pit.



Photo 17. Sample point 9.



Photo 18. Close-up of sample point 9 soil pit.



Photo 19. Sample point 10.



Photo 20. Close-up of sample point 10 soil pit.



Photo 21. Sampling point 11.



Photo 22. Close up of sample point 11 soil pit.



Photo 23. Sample point 12.



Photo 24. Sample point 13.



Photo 25. Close-up of sample point 13 soil pit.



Photo 26. Southwest view of Wetland A and grated inflow pipe with ponded surface water.



Photo 27. Representative photo of palustrine emergent wetland habitat within the survey area



Photo 28. Representative photo of palustrine emergent pond fringe habitat within the survey area.



Photo 29. Northwest view of an irrigation ditch with representative palustrine emergent wetland habitat adjacent to ditch in background of photo.



Photo 30. Representative photo of an irrigation ditch within the survey area.



Photo 31. Representative photo of human-made open water habitat within the survey area.

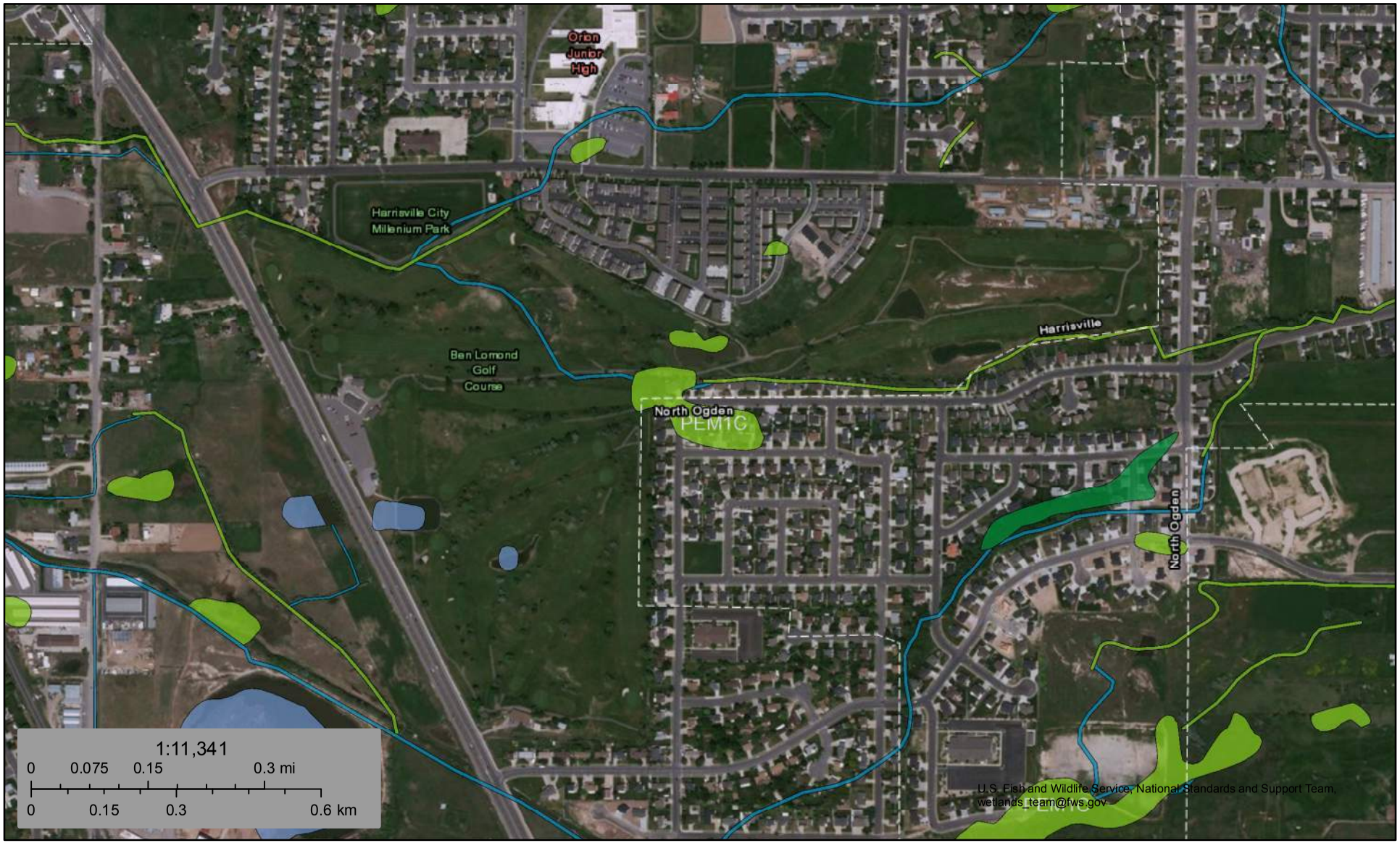


Photo 32. Representative photo of human-made open water habitat w/ outflow pipe within the survey area.

APPENDIX E: NATIONAL WETLAND INVENTORY MAP

U.S. Fish and Wildlife Service
National Wetlands Inventory

Ben Lomond Golf Course



September 17, 2019

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Exhibit N
Historic Resources and Preservation

Exhibit N-1

Historic Resources and Preservation Plan

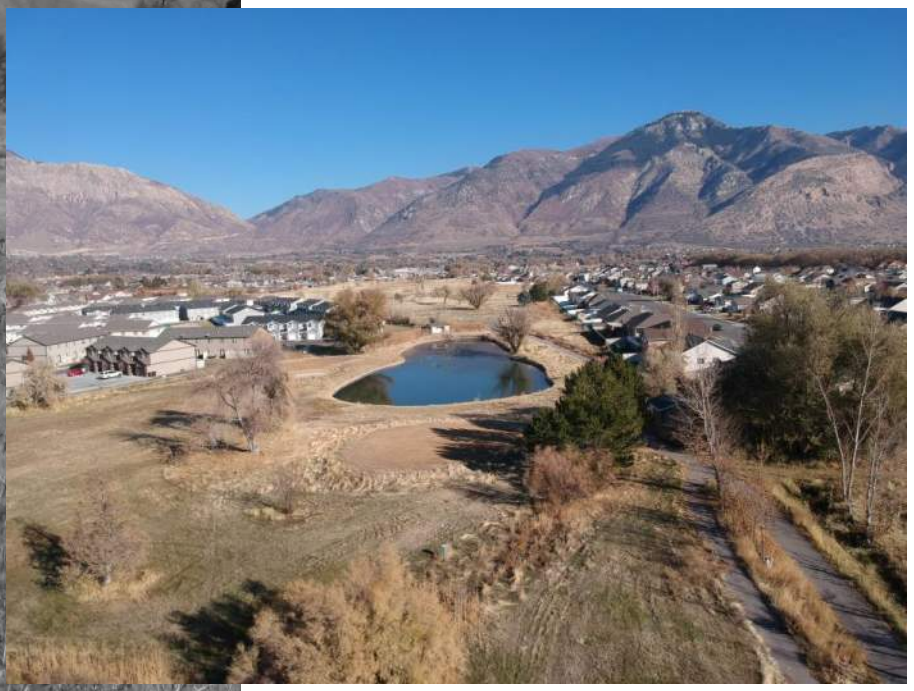
BLD Investment retained the Commonwealth Heritage Group of Ogden, Utah to determine the presence of archaeological, historic and cultural resources on the Ben Lomond site. The study found that there are no significant resources located within the project area. The Cultural Resources Inventory Report is included here in Exhibit N-2.

Exhibit N-2

COMMONWEALTH
HERITAGE GROUP

BEN LOMOND GOLF COURSE PROJECT IN WEBER COUNTY, UTAH





WEBER COUNTY, UTAH

PROJECT NUMBER: U19HP0793P
US ARMY CORPS OF ENGINEERS

NOVEMBER 22, 2019

A Cultural Resources Inventory of the Ben Lomond Golf Course in Weber County, Utah

Prepared for

BEN LOMOND DEVELOPMENT, LLC
51 WEST CENTER STREET #644
OREM, UTAH 84057

Prepared by

COMMONWEALTH HERITAGE GROUP, INC.
3670 QUINCY AVE, STE. 203
OGDEN, UTAH 84403

Wendy Simmons Johnson, M.A., RPA, Regional Director

U-0506

November 22, 2019

ABSTRACT

In October 2019, Ben Lomond Corporation, LLC of Orem, Utah requested that Commonwealth Heritage Group, Inc. (Commonwealth) conduct a cultural resources inventory of the proposed Ben Lomond Golf Course Project in Weber County, Utah. The project consists of an approximately 124 acres located in T7N R1W Sec 31, 32 and T6N R1W Sec 6 on the USGS 7.5' Quadrangle North Ogden, Utah (1998). Because this project would affect waters of the United States, this project must meet requirements of Section 404 of the Clean Water Act. The applicant is seeking a permit from the U.S. Army Corps of Engineers (USACE), Sacramento District. The purpose of this inventory is to identify, record, and evaluate cultural resources within the study area for their eligibility for listing in the National Register of Historic Places (NRHP) in accordance with the Sacramento District's March 24, 2014, *Guidelines for Compliance with Section 106 of the National Historic Preservation Act*, as amended.

One site was recorded during the current project. This was the Ben Lomond Golf Course (42WB554) that was opened in 1957. The Golf Course cannot be associated with an important event or person, nor does it represent the work of a master. Further there is little potential for intact cultural deposits within the site. Therefore, Commonwealth recommends this site Not Eligible for listing on the NRHP. Because there are no significant cultural resources located within the current project area, Commonwealth recommends there will be **No Adverse Effect** to cultural resources as a result of the construction of this project. This investigation was conducted with techniques that are considered adequate for evaluating cultural resources that are available for visual inspection on the ground surface and could be adversely impacted by the proposed project. However, there is the unlikely possibility of subsurface cultural deposits within the study area outside of the existing site. Should such resources be discovered during the project, a report should be made immediately to the USACE Regulatory Office located in Bountiful, Utah (801-295-8380).

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APPENDIX A: VITA

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PROJECT UNDERTAKING

In October 2019, Ben Lomond Corporation, LLC of Orem, Utah requested that Commonwealth Heritage Group, Inc. (Commonwealth) conduct a cultural resources inventory of the proposed Ben Lomond Golf Course Project in Weber County, Utah. The project consists of an approximately 124 acres located in T7N R1W Sec 31, 32 and T6N R1W Sec 6 on the USGS 7.5' Quadrangle North Ogden, Utah (1998). Because this project would affect waters of the United States, this project must meet requirements of Section 404 of the Clean Water Act. The applicant is seeking a permit from the U.S. Army Corps of Engineers (USACE), Sacramento District. The purpose of this inventory is to identify, record, and evaluate cultural resources within the study area for their eligibility for listing in the National Register of Historic Places (NRHP) in accordance with the Sacramento District's March 24, 2014, *Guidelines for Compliance with Section 106 of the National Historic Preservation Act*, as amended.

PROJECT DESCRIPTION

The Ben Lomond Golf Course was established in 1955 and has been a public course until the past few years when the golf course closed. The area is currently being master planned for a residential and commercial subdivision in the City of Harrisville. The project consists of a mix of product types including commercial mixed use, townhomes, short frontage single family lots, and larger single family lots. The project is approximately 125 acres.

It is anticipated that the project will start construction in the Summer of 2020. Roadways, including curb, gutter, sidewalk and asphalt will be installed. In addition, sewer, water, storm drain, power, gas, and communication lines will be installed to provide utility services to the units. It is anticipated that the project will take 3 to 6 years to complete and will include several different developers and builders.

The project will include significant open space including several parks, trails, landscaping, playgrounds and other amenities. Efforts will be made to avoid and/or minimize any impacts to existing wetlands areas within the project.

ENVIRONMENT

This site is located in the Wasatch Front Valley in Harrisville, Utah. The topography, vegetation and soils have been altered through the construction of the golf course. Vegetation consists of introduced grasses, trees and bushes. There is wetland vegetation surrounding one of the ponds, which includes phragmites, cattail and thistles.

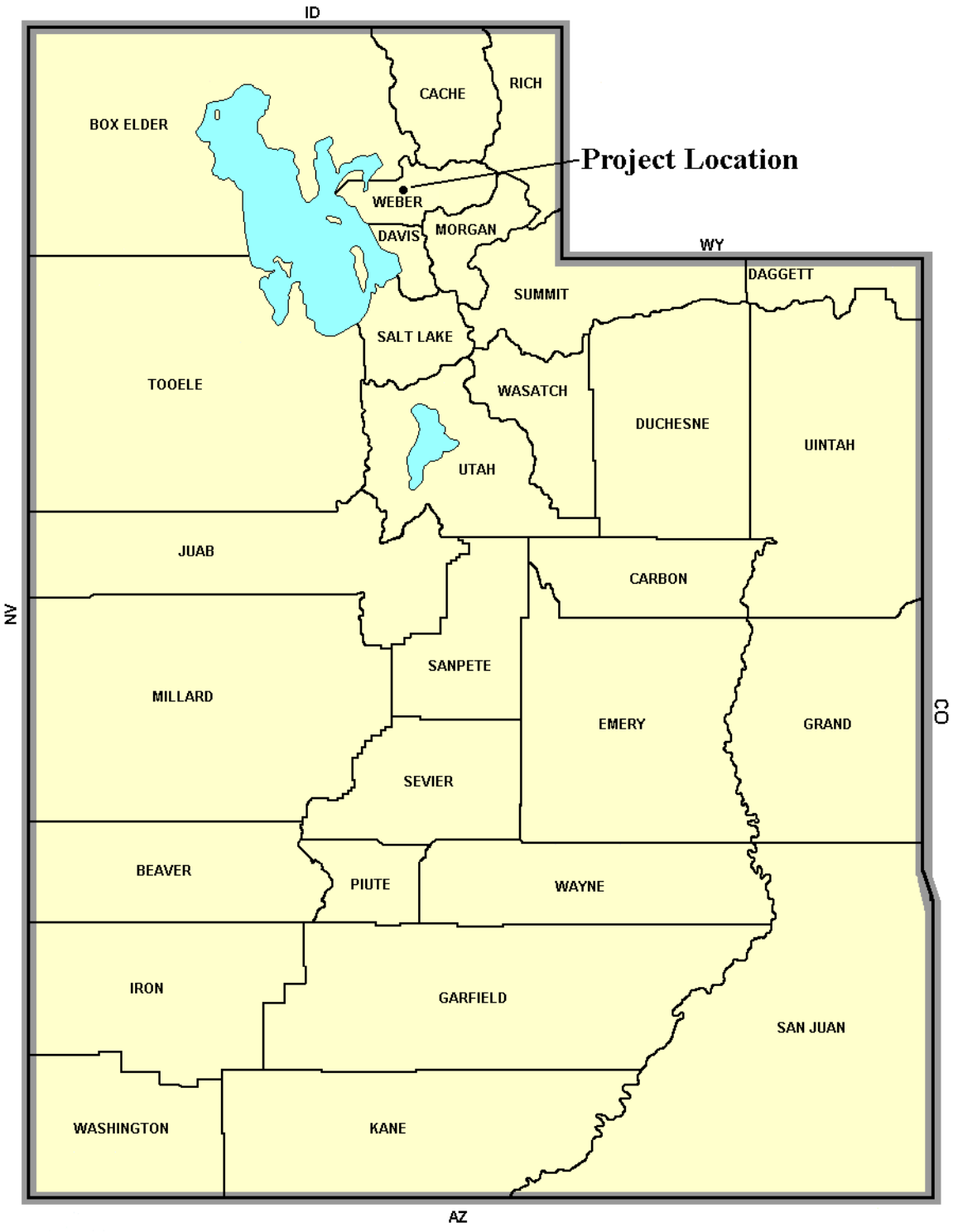


Figure 1. Location of the project area within the state of Utah.

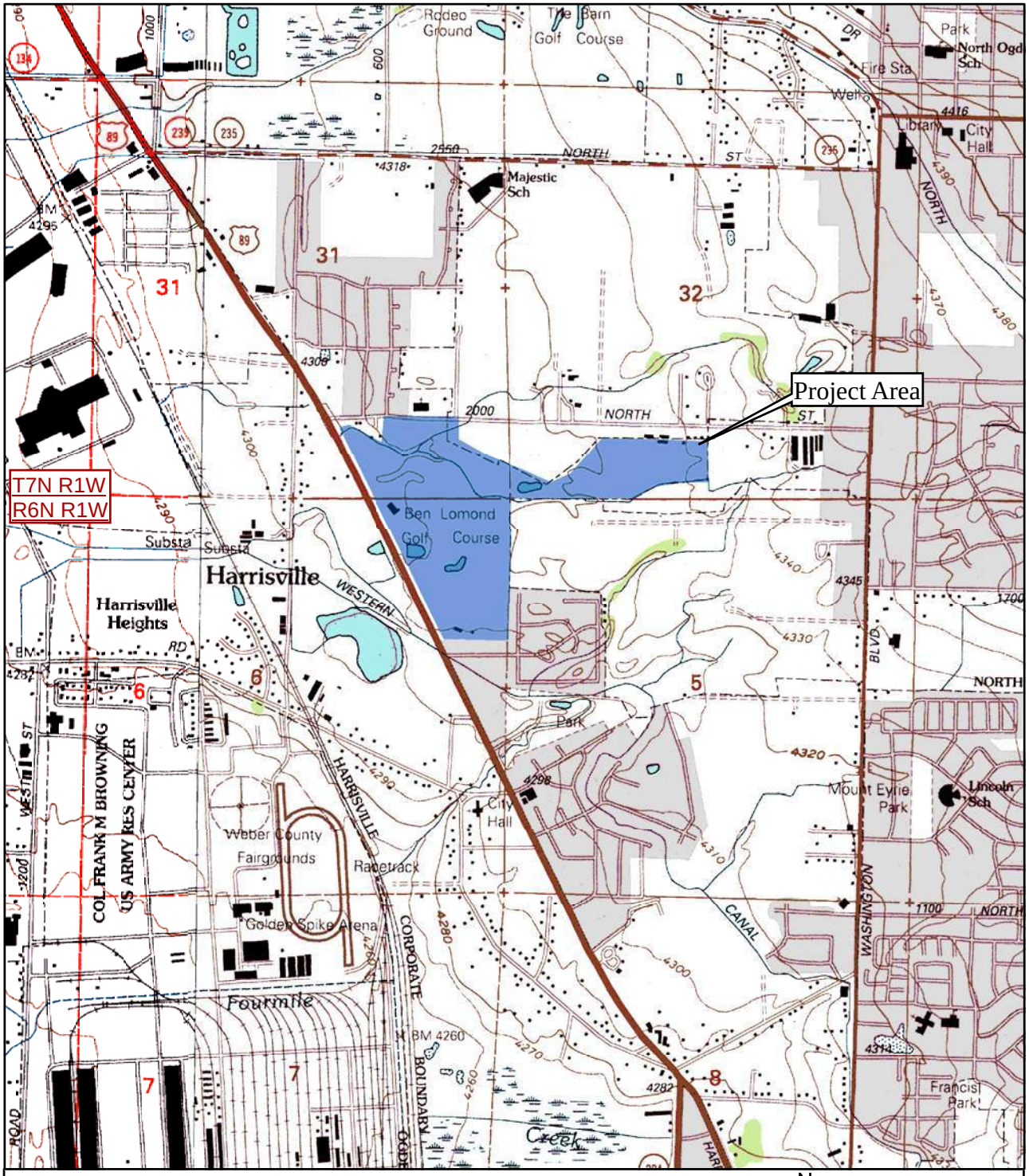


Figure 2. Location of the Ben Lomond Golf Coures Project. Taken from the USGS 7.5' Quadrangle North Ogden, Utah (1998).

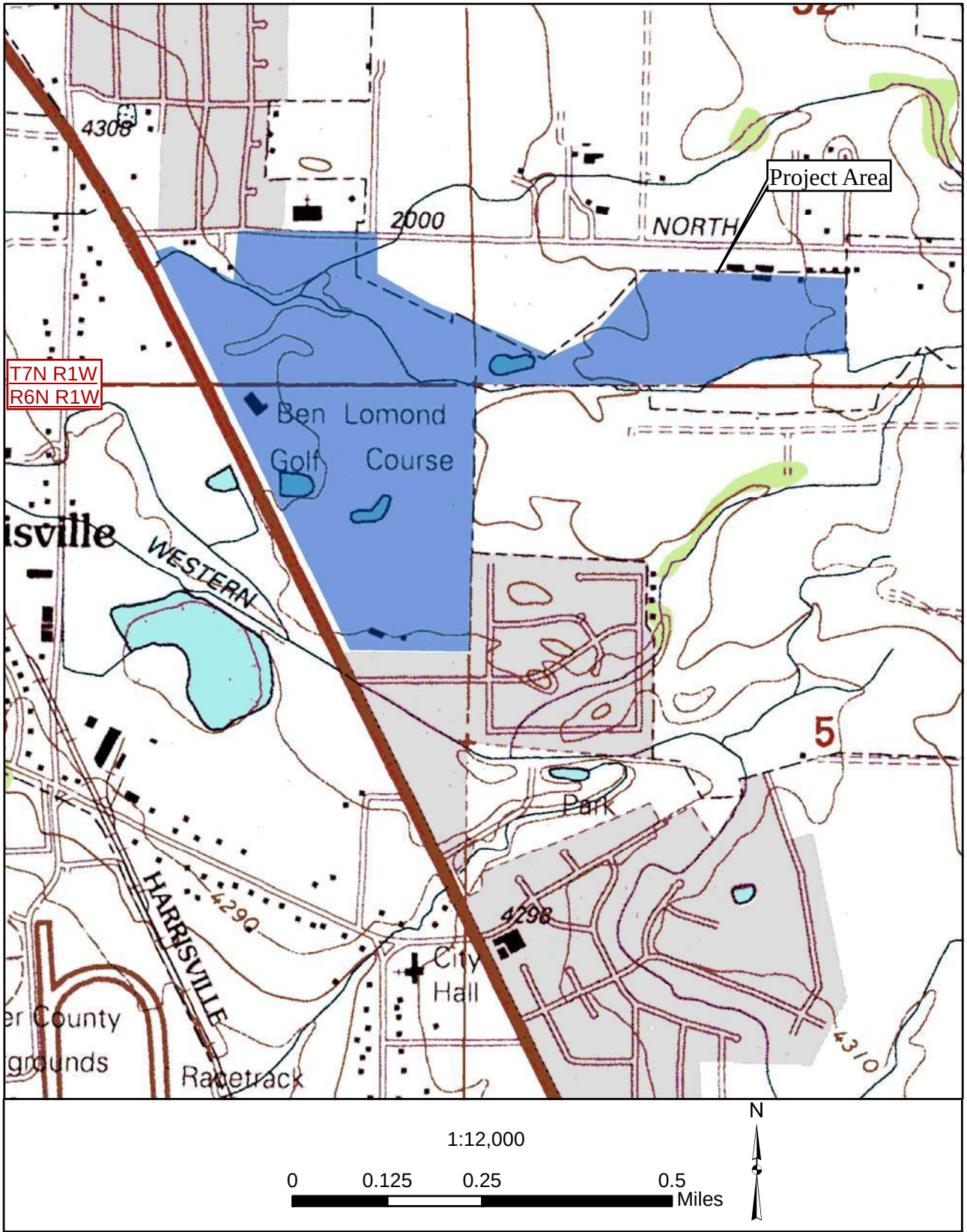


Figure 3. Close-up of the Ben Lomond Golf Course Project. Taken from the USGS 7.5' Quadrangle North Ogden, Utah (1998).

LITERATURE REVIEW

Prior to conducting fieldwork, Arie Leeflang, Records Specialist with the Utah State Historic Preservation Office (SHPO), conducted a Geographical Information Systems file search on October 29, 2019. Five cultural resource sites and six cultural resource projects were identified within one-half mile of the current study area. Following are Tables 1 and 2 describing these results.

Table 1. Sites Recorded within One-half Mile of the Current Study Area

Site No.	Associated Project No.	Site Type	Site Description	Distance to APE	Eligibility
42WB296	Weber Basin	Prehistoric	Destroyed Lithic Scatter	0.2 miles	Not Eligible
42WB344	U11SH0864	Historic	Union Pacific Railroad	0.4 miles	Eligible
42WB371	U03ST0045	Historic	Western Canal	167 feet	Eligible
42WB372	U03ST0045	Historic	Ogden, Logan & Idaho Line/ Utah Idaho Central RR	0.38 miles	Eligible
42WB375	U03EP0063	Historic	Ditch	0.42 miles	Not Eligible

Table 2. Projects Conducted within One-half Mile of the Current Study Area

Report #	Company	Project	Author/Date
U87AW0878	American Archaeological Consultants	Weber Basin Project	1987
U87CN0615	Centennial Archaeology Inc.	AT&T Class III Survey Utah	Tucker 1987
U96NR0131	Northwest Archaeological Associates, Inc.	Worldcom Seattle to Salt Lake City Fiber Optic Line	Sharp and Norman 1996
U03EP0063	EarthTouch, Inc.	Road Improvement of SR-89 from Wall Ave to 2700 N	Billat 2003
U03ST0045	SWCA, Inc	Commuter Rail Corridor and Nine Stations in Weber, Davis and Salt Lake Counties	Ellis, Christensen, Easton 2003
U15SJ0723	Sagebrush Consultants, LLC	Spring Meadows Subdivision, North Ogden, Utah	Simmons Johnson 2015

General Land Office (GLO) Records were also reviewed prior to fieldwork. One unnamed two-track road was noted in T7N R1W Section 32 on the 1856 GLO Plat; however, this feature was likely obscured by the construction of the Golf Course. The NRHP was also consulted prior to the commencement of fieldwork for the current project and two NRHP-listed sites were listed within one mile of the current project area. These include the Sidney Stevens house and North Ogden Elementary, both of which have been completely demolished.

FIELD METHODOLOGY

The study area was inventoried by Wendy Simmons Johnson on November 6, 2019 under the Utah Public Lands Policy Coordinating Office (PLPCO) Permit No. 308. Johnson, who holds a M.A. in Anthropology/Archaeology, is a member of the Register of Professional Archaeologists, and meets the Secretary of the Interior's Standards for Professional Qualifications for Archaeology (48FR 44738-44739). Ms. Simmons Johnson is a Principal

Investigator for Commonwealth. She has worked in archaeological compliance in the Intermountain West for over 20 years and has worked on numerous cultural resources assessments for USACE permit applications since 2000 (Appendix A).

The inventory area was subject to uniform field methodology and was inventoried in parallel transects spaced no more than 15 meters (50 feet) apart. The *Archaeological Compliance Guidance* produced by the Utah SHPO indicates that a transect width of 15 meters (50 feet) is the "commonly accepted transect standard in Utah" (Utah SHPO 2016:14). The SHPO guidance document also states, "Given Utah's generally high ground visibility, it is not expected that any inventory would use shovel probes to identify archaeological sites" (Utah SHPO 2016:14). Very little soil development has taken place in this area, and it is expected that any cultural presence would be visible on the ground surface, since the impacts would have led to upheaval and mixing of materials. For these reasons, no testing was conducted for cultural deposits beneath the ground surface within the study area. The USACE typically defers to the SHPO guidance standards for cultural resources inventory areas and methods in Utah. These standards are compliant with the Sacramento District's March 24, 2014, *Guidelines for Compliance with Section 106 of the National Historic Preservation Act*.

FINDINGS

In October 2019, Ben Lomond LLC of Orem, Utah requested that Commonwealth conduct a cultural resources inventory of the Ben Lomond Golf Course Project in Weber County, Utah. The Ben Lomond Golf Course (42WB554) was located within the study area (Figure 4).

Site 42WB554

The Ben Lomond Golf Course located just off of Highway 89 in Harrisville, Utah measures 123.7 acres. The golf course was first conceived in 1955 by Clifford Eugene (Eugene) Stanger after a series of people had tried to convince Ogden City to construct a second golf course had failed. Mr. Stanger and his wife purchased 50 acres from the Gooch family to start the project. In 1956, the Ben Lomond Golf Course, Inc was founded with Lynn Foley, Dee Wolford, John Sarlo, Eugene Stanger, Jack Richards, Ray Adams, El Dreysdale and Bob Stratton on the board. The goal of the corporation was to raise $50,000 to purchase more land and start construction on the golf course. If the total $50,000 was not raised the stakeholders would be reimbursed their funds. However, the monies were quickly raised within a two month period and on August 10, 1956 construction was started on the golf course. A nine-hole course was soon constructed and a "café and pro shop were purchased and moved onto the property. The equipment building and the greenskeeper apartment was built" (Warden 1958). On July 14, 1957 the Ben Lomond Golf Course was opened to the public (Warden 1958). Stanger described the state of the golf course as follows: "The greens were good, the fairways were por, but the roughs were excellent" (Warden 1958). Over the next few years the golf course was improved and additional lands were purchased to expand to 18 holes and construct a clubhouse. It was planned to sell stock to afford these upgrades so that the "people of this area will buy an interest in their own recreation…" (Warden 1958). By 1964, the Golf Course was advertised as having the only

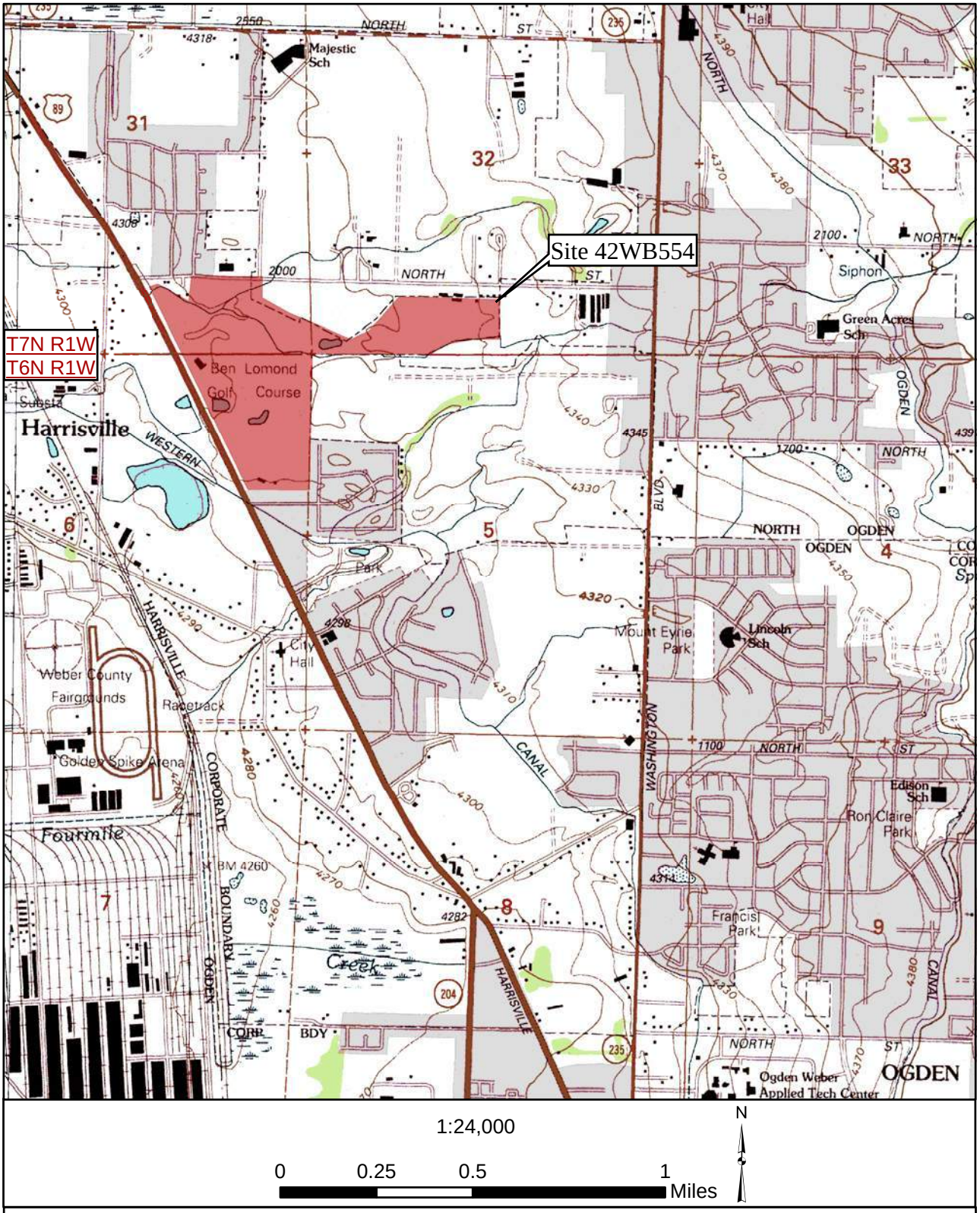


Figure 4. Location of site 42WB554, the Ben Lomond Golf Course. Taken from the USGS 7.5' Quadrangle North Ogden, Utah (1998).

19-hole course in the Ogden area. It also boaster a driving range, café and Golf Pro Ernie Schneiter (Weber State College Signpost 1964). In 1966, Weber State College formed its first golf team and used the Ben Lomond Golf Course as its official practice course (Davis County Clipper 1966). Various local golf tournaments were held at the course, and there were parties and weddings at the clubhouse.

By the 1980s, the Ben Lomond Golf Course was losing popularity, as an article in the Weber State College Signpost indicates: "Ben Lomond features some of the shortest and easiest holes on a golf course in the state. The course is definitely one for the average golfer . . . who's unable to get on anywhere else" (WSC Signpost 1983). The 1983 article also advises to beware of a headwind because of the smell of cattle surrounding the course (WSC Signpost 1983). The clubhouse and pro shop were torn down and replaced in the 1990s. By the 2000s, the course was financially in trouble and closed in 2018. The course is still owned by its shareholders although it is under contract for development of housing.

The golf course has been abandoned for over a year. Many of the trees and bushes planted around the course have died from lack of water. The course had been mowed prior to the survey; however, patches of unmowed grass were over 2 feet tall. The clubhouse, office and pumphouse are all modern buildings constructed after 1990. There are two restrooms located on the greens that also appear to be modern construction. A garage located near the clubhouse is constructed of concrete blocks and was likely constructed in the late 1950s. There are two sheds located along the fairways. On the south end of the golf course there is a restroom, garage, storage shed possibly for golf carts, two small storage sheds, and what appears to be a groundkeeper residence. The garage and residence have been sided in aluminum. There are 18 greens and fairways, five ponds, and multiple hazards and narrow golf-cart asphalt trails connecting each of the greens.

Eugene Stanger was the impetus behind the construction of the Ben Lomond Golf Course. He was born on June 26, 1912 the son of Archibald and Beatrice Holmes Stanger, he was the second of seven children (familysearch 2019). He was born in the small farming town of Marriot in Weber County, Utah where Eugene worked until his marriage on June 26, 1935 to June Eloise Wheeler in Salt Lake City, Utah (familysearch 2019). Eugene and June moved to Ogden City where he worked as a timekeeper for American Packing and Provision Co. until he became a public accountant around 1948 (Ogden City Directory 1942; 1948). Together Eugene and June had four children; three daughters and one son (Jean, Sheri, Sandra and Douglas) (*Standard Examiner* 2008). Eugene Stanger worked to develop the Ben Lomond Golf Course in the late 1950s. He died on June 15, 2000 and was buried in the Ogden City Cemetery (familysearch 2019).

Site 42SWB554 NRHP Recommendation

The abandoned Ben Lomond Golf Course retains integrity of location, design, materials, workmanship, and association. The setting and feeling have been compromised from the abandonment of the course as well as modern development surrounding the golf course. Additionally, the primary structures (the clubhouse and pro shop) have been replaced with

modern (1990s) structures. This site cannot be associated with significant events or persons in the history of the region. Further the golf course does not embody the distinctive characteristics of a type, period or method of construction, nor does it represent the work of a master. This site is also not likely to contain intact cultural deposits that could yield information important to the history of the area. Commonwealth therefore, recommends this site **Not Eligible** to the NRHP under any criteria.

RECOMMENDATION OF EFFECT

One site was recorded during the current project. This was the Ben Lomond Golf Course (42WB554) that was opened in 1957. The Golf Course cannot be associated with an important event or person, nor does it represent the work of a master. Further there is little potential for intact cultural deposits within the site. Therefore, Commonwealth recommends this site Not Eligible for listing on the NRHP. Because there are no significant cultural resources located within the current project area, Commonwealth recommends there will be **No Adverse Effect** to cultural resources as a result of the construction of this project. This investigation was conducted with techniques that are considered adequate for evaluating cultural resources that are available for visual inspection on the ground surface and could be adversely impacted by the proposed project. However, there is the unlikely possibility of subsurface cultural deposits within the study area outside of the existing site. Should such resources be discovered during the project, a report should be made immediately to the USACE Regulatory Office located in Bountiful, Utah (801-295-8380).

REFERENCE CITED

Davis County Clipper Bountiful, Utah
1966 WSC Adds Golf to Sports Prog. 25 Mar. Bountiful, Utah.

Familysearch
2019 Record for Clifford Eugene Stanger KWCZ-D1G. Accessed 1 Nov. at <www.familysearch.org.>

Kawa, Barry
1983 Choose Your Favorite Course Among Local Golfing Areas. *Weber State College (WSC) Signpost* 24 May pg. 7B, Ogden, Utah.

Ogden City Directory
1942 Entry for Stanger, Clifford E. U.S. City Directories, Ogden, Utah. Located online at <www.ancestry.com)
1948 Entry for Stanger, Clifford E. U.S. City Directories, Ogden, Utah. Located online at <www.ancestry.com)

Standard Examiner Ogden, Utah
2008 Obituary for June Eloise Wheeler Stanger. 29 May. Ogden, Utah.

Warden, Al
1958 The Sports Highway: Eugene Stanger Tells of Ben Lomond History in Golf. Ogden *Standard Examiner* 23 Oct. pg. 34. Ogden, Utah

Weber State College (WSC) Signpost
1964 Advertisement for Ben Lomond Golf Course. 17 April, Ogden, Utah.

Utah State Historic Preservation Office (SHPO)
2016 State of Utah Archaeological Compliance Guidance. Utah State Historic preservation Office, Utah Division of State History. Access online: 11 September < https://heritage.utah.gov/wp-content/uploads/Arch_Compliance_Guide_ March2016.pdf?x15791>

APPENDIX A

VITA

Wendy Simmons Johnson, RPA
Principal Investigator
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B.A.	Brigham Young University	International Relations	1990
M.A.	Brigham Young University	Anthropology	1992

Wendy Simmons Johnson is the Regional Director for the Commonwealth Heritage Group, Inc. Ogden Office. She has more than two decades of cultural resource management on various projects in the Intermountain area. Ms. Simmons prepares bids, cost proposals, specialist work plans, sections of management and mitigation plans, MOA's and PA's in conjunction with federal agencies and other NEPA compliance documents. She also conducts project and field supervision, site evaluation and assessment of affect, historic site research, UHCS Reconnaissance Level Surveys, 106 Site Information forms, and performs QA/QC editing of reports.

Register of Professional Archaeologists (RPA)
American Cultural Resources Association (ACRA)

Utah PLPCO Principal Investigator Permit 308
Utah Bureau of Land Management Permit 14UT54630; Historic Statewide; Prehistoric Great Basin
Nevada State Museum Permit #267; Principal Investigator
Nevada BLM Permit N-39969; Historic and Prehistoric Statewide
State of Colorado Archaeological Permit 2017-26; Principal Investigator
Colorado BLM Permit C-77910; State except CANM, LJGA, RGFO, and TRFO
Wyoming BLM Permit 642-WY-SR17; Field Director

2002-17 Principal Investigator, Commonwealth Heritage Group, Inc. Contract archaeological work on various projects in the Intermountain area. Duties include; project and field supervision, site evaluation, data collection, file searches, research and documentation of historic sites and events, participation in all phases of final report preparation, editing, drafting, ground survey of proposed project areas, the assessment of cultural resources within project scope, UHCS Reconnaissance Level Surveys, preparation of 106 site information forms, bids, cost proposals, MOA's, PA's, Specialist Work Plans, other NEPA compliance documents, sections of management and mitigation plans, photography, excavation and GPS mapping of both prehistoric and historic sites and laboratory analysis.

1996-02 Weber County Elections Administrator, Ogden, Utah.

1993-06 Senior Archaeologist, Sagebrush Archaeological Consultants, Ogden, Utah. Supervisor: Michael R. Polk, Archaeologist/Principal Investigator. Contract archaeological work on various projects in the Intermountain area. Duties include; project and field supervision, site evaluation, data collection, file searches, research and documentation of historic sites and events, participation in all phases of final report preparation.

1992 Archaeological Technician for the Office of Public Archaeology, Provo, Utah. Supervisor: James Wilde. Duties included: laboratory work, processing flotation samples, processing artifacts, curation of artifacts, inventory, records research, survey, documentation of historic and prehistoric sites, drafting, test excavation, and all phases of final report preparation.

2017 *A Cultural Resources Inventory of the Pioneer Road Realignment in Marriott-Slaterville, Weber County, Utah.* For the USACE Bountiful Office. Wendy Simmons Johnson. Commonwealth Report No. 2172. (March 2017).

The Lake Powell Pipeline Class III Final Draft Report. Don Southworth, Michael R. Polk, Wendy Simmons Johnson, Sandy Chynoweth Pagano, and John Rasmussen. Sagebrush Consultants Report No. 1731 (July 2017).

2016 *A Cultural Resources Inventory of the Snyderville North Parcel Project, Summit County, Utah* For the USACE Bountiful Office. Wendy Simmons Johnson. Commonwealth Report No. 2107. (January 2016).

A Cultural Resource Inventory of the Salem Shops Sewer Connection Project, Utah County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson. Commonwealth Report No. 2123. (March 2016).

A Cultural Resource Inventory of the 300 West Main Street Wetlands Project in Hyrum, Cache County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson. Commonwealth Report No. 2130. (April 2016).

A Cultural Resources Inventory of the Logan River Trail Stewart Nature Park Project in Cache County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson. Commonwealth Report No. 2133. (August 2016).

A Cultural Resources Inventory of the Logan River Trail Golf Course Project in Cache County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson. Commonwealth Report No. 2134. (December 2106).

A Cultural Resources Inventory of the Brigham City Reeder Substation Powerline Project, Box Elder County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson and John Rasmussen. Commonwealth Report No. 2136. (January 2017).

A Cultural Resources Inventory of the Midway Springs Project in Wasatch County, Utah. For the USACE Bountiful Office. Wendy Simmons Johnson. Commonwealth Report No. 2139. (July 2016).

A Cultural Resource Inventory of the Saratoga Springs Marina, Utah County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson. Commonwealth Report No. 2147. (August 2016).

2015 *A Cultural Resources Inventory of the Iroquois Development Project near Keetley Junction in Wasatch County, Utah.* Wendy Simmons Johnson. For the USACE Bountiful, Utah Office. Sagebrush Report No. 2072. (February 2015).

A Cultural Resources Inventory of the DK and Godfrey Property in Salt Lake County, Utah. For

the USACE Bountiful, Utah Office. Wendy Simmons Johnson. Sagebrush Report No. 2077. (February 2015).

A Cultural Resources Inventory of the Eastridge Park PRUD, Layton, Davis County, Utah. Wendy Simmons Johnson. For the USACE Bountiful, Utah Office. Sagebrush Report No. 2081.
A Cultural Resources Inventory of the Brigham City Powerline East Loop, Box Elder County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson and John Rasmussen. Sagebrush Consultants Report No. 2088. (July 2015).

A Class III Cultural Resources Inventory for the Silver Star Communications Sage Junction Fiber Optic Line, Lincoln County, Wyoming. Wendy Simmons Johnson. Sagebrush Report No. 2103. (August 2015).

A Cultural Resources Inventory of the Love's Travel Stop Convenience Store and Hotel Near I-15 and Forest Street, Brigham City, Box Elder County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson. Sagebrush Report No. 2108. (September 2015).

A Cultural Resources Inventory of the Spring Meadows Subdivision, North Ogden, Weber County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson. Sagebrush Report No. 2110. (November 2015).

A Cultural Resources Inventory of the Creekside Farm Project, Utah County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson. Sagebrush Report No. 2116. (November 2015).

A Cultural Resources Inventory of the Summit Park, Plat M, Lot 13 in Summit County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson. Sagebrush report No. 2117. (November 2015).

2014 *A Cultural Resources Inventory of the Sorensen Residential Building Lot and Wetlands Mitigation Site, in Summit County, Utah.* For the USACE Bountiful, Utah Office. Wendy Simmons Johnson. Sagebrush Consultants Report No. 2045 (July 2014).

A Cultural Resources Inventory of the Bonneville Center Lot 8, Salt Lake County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson. Sagebrush Consultants Report No. 2047 (July 2014).

A Cultural Resources Inventory of the Alder Square Commercial Development Project Providence, Cache County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson. Sagebrush Consultants Report No. 2047 (August 2014)

A Cultural Resources inventory of the Webber Property near Park City, Summit County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson. Sagebrush Report No. 2066 (October 2014).

A Cultural Resources Inventory of the Edison Winter Farms Project near Peoa, Summit County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson. Sagebrush Report No. 2069. (December 2014).

A Cultural Resources Inventory of the Colony, IMA, 4F, near Park City, Summit County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson Sagebrush Report No. 2070. (December 2014).

2013 *Cultural Resources Inventory of the Sage Grouse Initiative Project in Portage Canyon, Box Elder County, Utah.* Wendy Simmons Johnson. Sagebrush Report No. 1997 (December 2013).

2012 *The Mitigation of Sites 42TO3868 and 42TO5010 Part of the Mona to Oquirrh Transmission Corridor Project, Tooele County, Utah.* Wendy Simmons Johnson. Sagebrush Consultants Report No. 1937.

From Lampo Junction to Rozel: The Archaeological History of the Transcontinental Railroad across the Promontory Mountains, Utah. Michael R. Polk and Wendy Simmons Johnson. Sagebrush Consultants Report No. 1614 (April 2012).

Kays Creek Irrigation Middle Fork Pipeline Project Layton, Davis County, Utah. Wendy Simmons Johnson. Sagebrush Consultants Report No. 1891 (January 2012).

A Cultural Resource Inventory for a Segment of the Proposed Echo Trail, Summit County, Utah. Wendy Simmons Johnson. Sagebrush Consultants Report No. 1882 (January 2012).

2011 *The Proposed Skabelund Business Park in Logan, Cache County, Utah.* For the USACE Bountiful, Utah Office. *Frontier Corporation.* Wendy Simmons Johnson. Sagebrush Consultants Report No. 1865 (September 2011).

A Cultural Resources Survey of an ICON Fitness, Inc. Parcel for the Logan River Project in Logan City, Cache County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson. Sagebrush Consultants Report No. 1835 (May 2011).

A Cultural Resources Survey of an 18-Acre Parcel for the Logan River Trail Project in Logan City, Cache County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson. Sagebrush Consultants Report No. 1829 (April 2011).

2010 *A Class III Cultural Resource Inventory of Proposed Access Roads for the J. R. Simplot Dairy Syncline Project, Caribou County, Idaho.* Wendy Simmons Johnson and Thomas B. Jones. Sagebrush Consultants Report No. 1805 (October 2010).

A Cultural Resources Inventory of the Farmington Creek Restoration Project, Davis County, Utah. For the USACE Bountiful, Utah Office. Wendy Simmons Johnson and Tiffany Tuttle Collins. Sagebrush Consultants Report No. 1797 (August 2010).

A Cultural Resources Inventory of the All West Communications Fiber Optic Line along SR-89, Lincoln County, Wyoming. Wendy Simmons Johnson. Sagebrush Consultants Report No. 1757 (June 2010).

2009 *A Cultural Resources Inventory of the Nielson Energy Inc. Ryckman Creek #9 Well, Uinta County, Wyoming.* Wendy Simmons Johnson and Jonathan Peart. Sagebrush Consultants Report No. 1751 (October 2009).

A Cultural Resource Survey of a Proposed Gravel Source near Grace, Caribou County, Idaho. Wendy Simmons Johnson. Sagebrush Consultants Report No. 1747 (September 2009).

A Cultural Resources Inventory of the Iron Creek Energy Group Four Mile Pipeline near Ryckman Creek, Uinta County, Wyoming. Wendy Simmons Johnson. Sagebrush Consultants Report No. 1750 (September 2009).

A Cultural Resource Inventory of Retamco's Proposed Rathole Gathering Area Pipeline and Access Roads in Garfield County, Colorado. Wendy Simmons Johnson and Michael R. Polk. Sagebrush Consultants Report No. 1744 (June 2009).

A Cultural Resource Inventory for the Proposed Relocation of BOPCO Well, Yellow Creek Federal 32-41-1, in Rio Blanco, Colorado. Wendy Simmons Johnson and Michael R. Polk. Sagebrush Consultants Report No. 1738 (May 2009).

Final: Geomorphological and Lithic Analysis on Saylor Creek Range, Mountain Home Air Force Base, Owyhee County, Idaho. Wendy Simmons Johnson, Michael R. Polk, and William Eckerle. Sagebrush Consultants Report No. 1592 (February 2009).

2008 *A Cultural Resources Inventory for the Bear Canyon Well #8-12 Man Camp, Lincoln County, Wyoming*. Wendy Simmons Johnson and Alyssa K. Wallin. Sagebrush Consultants Report No. 1670 (October 2008).

A Cultural Resources Inventory of Fortuna Energy Well Bear Canyon #14-13, Lincoln County, Wyoming. Wendy Simmons Johnson and Alyssa K. Wallin. Sagebrush Consultants Report No. 1697 (October 2008).

An Analysis of the Fortuna Energy Well Bear Canyon #14-13, on the Sublette Cutoff (48LN225), Lincoln County, Wyoming. Wendy Simmons Johnson and Alyssa K. Wallin. Sagebrush Consultants Report No. 1697b (October 2008).

A Cultural Resources Inventory of the Proposed Nielson Energy Group Ryckman Creek #11 Access Road, Uinta County, Wyoming. Wendy Simmons Johnson. Sagebrush Consultants Report No. 1700 (July 2008).

A Cultural Resources Inventory of Fortuna Energy Well Bear Canyon #14-13, Lincoln County, Wyoming. Wendy Simmons Johnson and Alyssa K. Wallin. Sagebrush Consultants Report No. 1697 (July 2008).

A Cultural Resources Inventory for the Bear Canyon Well #8-12 Man Camp, Lincoln County, Wyoming. Wendy Simmons Johnson, Alyssa K. Wallin. Sagebrush Consultants Report No. 1670 (July 2008).

A Class I Cultural Resource Overview of the Ryckman Creek Project Area, Uinta County, Wyoming. Wendy Simmons Johnson, Michael L. Terlep, and Thomas B. Jones, Jr. Sagebrush Consultants Report No. 1693 (June 2008).

Final: 2007 Cultural Resource Test Excavation of Site 10OE5377, Exclusive Use Area of Saylor Creek Range, Mountain Home Air Force Base, Owyhee County, Idaho. Wendy Simmons Johnson and Michael R. Polk with contributions by Heather Weymouth and William Eckerle. Sagebrush Consultants Report No. 1472 (June 2008).

2007 *A Cultural Resources Inventory of the Fortuna Energy Well, Bear Canyon #7-23, Lincoln County, Wyoming*. Wendy Simmons Johnson and John D. Baker. Sagebrush Consultants Report No. 1624 (May 2007).
A *Cultural Resource Inventory of Two Proposed Wells, 3-12 N. Barcus Creek Federal and 4-12 N. Barcus Creek Federal, with Associated Access Roads and Pipelines, in Rio Blanco County, Colorado*. Wendy Simmons Johnson. Sagebrush Consultants Report No. 1608 (May 2007).

A Cultural Resources Inventory of the Fortuna Energy Well, Bear Canyon #8-12, Lincoln County, Wyoming. Wendy Simmons Johnson and John D. Baker. Sagebrush Consultants Report No. 1597 (May 2007).

A Cultural Resource Inventory of BOPCO's Proposed Wells, Yellow Creek Federal 2-42-1 and 5-32-1, and Connector Pipelines, in Rio Blanco County, Colorado. Wendy Simmons Johnson. Sagebrush Consultants Report No. 1605 (March 2007).

2005 *A Cultural Resources Survey of the Zinke and Trumbo Wells; South Waterfall #11-4/13-2, Lincoln County, Wyoming.* Wendy Simmons Johnson and Tanya L. Johnson. Sagebrush Consultants Report No. 1464 (November 2005).

A Cultural Resources Survey of the Zinke and Trumbo Wells; East Kemmerer #21-4/27-2, Lincoln County, Wyoming. Wendy Simmons Johnson and Tanya L. Johnson. Sagebrush Consultants Report No. 1463 (November 2005).

A Cultural Resources Survey of the Zinke and Trumbo Well North Fork #11-3/15-1, Lincoln County, Wyoming. Wendy Simmons Johnson and Tanya L. Johnson. Sagebrush Consultants Report No. 1457 (November 2005).

2004 *A Cultural Resources Survey of the Zinke and Trumbo Access Road Snow Fence from State Highway 189 South to the Well Waterfall 1-35, Lincoln County, Wyoming.* Wendy Simmons Johnson and Angela Garrison. Sagebrush Consultants Report No. 1369 (November 2004).

Mitigation of Cultural Resource Sites 42Bo971 and 42Bo974 for the Dee's Land Exchange Project, Box Elder County, Utah. Wendy Simmons Johnson, Sandy Chynoweth Pagano, Heather M. Weymouth and Shane Rumsey. Sagebrush Consultants Report No. 1245 (January 2004).

2002 *Intensive Level Recordation of 14 Historic Properties East of Wall Avenue, Ogden, Weber County, Utah.* Wendy Simmons Johnson and Andrea L Field. Sagebrush Consultants Report No. 1141 (August 2002).

2000 *A Cultural Resources Survey of Pressurized Pipelines for the Wasatch County Water Efficiency Project, Wasatch County, Utah.* Heather M. Weymouth and James R. Christensen with contributions by Sheri Murray Ellis and Wendy Simmons-Johnson. Sagebrush Consultants Report No. 1111 (March 2000).

1999 *A Cultural Resources Survey of Portions of the Timpanogos, Humbug, and Wasatch Canals, Wasatch County, Utah.* Kevin C. O'Dell, Erica L. Hanson, Wendy Simmons-Johnson and Sheri Murray Ellis. Sagebrush Consultants Report No. 1046 (August 1999).

1996 *Test Excavations at the Haidee Mine Complex and Site SL-562, Lemhi County, Idaho.* Michael R. Polk with contributions by Sheri L. Murray, Wendy E. Simmons, and Heather M. Weymouth. Sagebrush Consultants Report No. 684 (February 1996).

1995 *A Cultural Resources Survey of Nevada Bell's Fiber Optic Cable from Palisade Interchange to Eureka, Eureka County, Nevada.* Wendy E. Simmons and Sheri L. Murray. Sagebrush Consultants Report No. 663 (February 1995).

1994 *A Cultural and Paleontological Resources Survey of the Proposed US-40 Widening Project between Mile-Post 170 and the Colorado Border, Uintah County, Utah.* Wendy E. Simmons and Alden H. Hamblin. Sagebrush Consultants Report No. 704 (November 1994).

1993 *A Cultural Resources Survey of the Proposed Circular Butte Landfill Site, Jefferson County, Idaho.* Michael R. Polk and Wendy E. Simmons. Sagebrush Consultants Report No. 634 (December 1993).

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Education

B.S.	Colorado State University	Anthropology	2008

Experience Profile

John Rasmussen has been an archaeologist working for Commonwealth Heritage Group, Inc. (formerly Sagebrush Consultants) since 2009. Responsibilities include: report writing, ground survey, excavation, recordation of historic and prehistoric sites, logistics, file searches, directing crews, archival research, excavation, drafting, direct client interaction, Native American consultation, field and technical photography, analysis and compilation of data utilizing Trimble Global Positioning System (GPS) units, assembly and knowledgeable use of a Topcon Total Station, as well as extensive use of Terra-synch and Pathfinder software.

Recent Publications and Papers

A Cultural Resource Inventory of the 2016 Range Management Project near Etna, Utah. John Rasmussen (June 2016).

A Cultural Resource Inventory of the 2016 Range Management Project near Rosette and Dove Creek, Utah. John Rasmussen. (June 2016).

A Cultural Resources Inventory of the Foxboro Wetland Revitalization Project, Davis County, Utah. John Rasmussen (May 2016).

Hill Air Force Base Historic Railway System Recordation Project. Michael Polk and John Rasmussen. (October 2015).

A Cultural Resources Inventory of the Brigham City Powerline East Loop (Draft). Wendy Simmons Johnson and John Rasmussen *(August 2015)*

A Cultural Resources Survey for the Proposed J6 Ranches Water Well and Pipeline, Box Elder County, Utah. Wendy Simmons Johnson and John Rasmussen*. (July 2015)*

A Cultural Resource Survey of the 2014 NRCS Range Management Project Near Grouse Creek Junction, And Three C-Bar Ranch Parcels, In Box Elder County, Utah. Sandy Pagano, John Rasmussen, and Wendy Simmons Johnson*. (March 2015)*

Synthesis Report on Cultural Resource Work for the Mona to Oquirrh Transmission Line Mitigation and Variance Projects. John A. Rasmussen and Wendy Simmons Johnson. (March 2014)

Exhibit O
Parks, Trails and Open Spaces (PTOS)

Exhibit O-1

Parks, Trails and Open Space (PTOS) Plan
March 25, 2021

The Ben Lomond Views Landscape Plan addresses the following areas in the Ben Lomond Views development:

- Local parks
- Common area open space
- Landscape areas of residential homes

This Landscape Plan does not include improvements to Millenium Park, which are addressed in the Millenium Park Easement Agreement.

Local parks and general common area open space are identified in the PTOS Plan, Exhibit 0-2. As shown there, Ben Lomond Views has 7 local parks, identified as Parks A through G, with a total of 12.13 acres. Designs for these parks, prepared by the Langvardt Design Group, are described in Exhibit 0-3.

The PTOS Plan also identifies 18.66 acres of common open space. Landscape Standards for these spaces as well as open areas of residential lots are included in Exhibit O-4. The PTOS Plan also shows a berm along the western boundary of the site adjacent to Highway 89 and a berm on the eastern end of the Town Center road at the boundary of the existing home development near the access to 2000 N. The design of these berms and related fencing is shown in Exhibit O-5.

As described in the Maintenance Plan, Exhibit R, the Ben Lomond Views Owners Association (HOA) will manage and maintain the local parks and common open spaces. The HOA will also manage maintenance in Millenium Park as described in the Millenium Park Easement Agreement, Exhibit S.

Landscaping in private lots will be the responsibility of homeowners, subject to requirements in the CC&Rs with oversight by the HOA Design Review Committee.

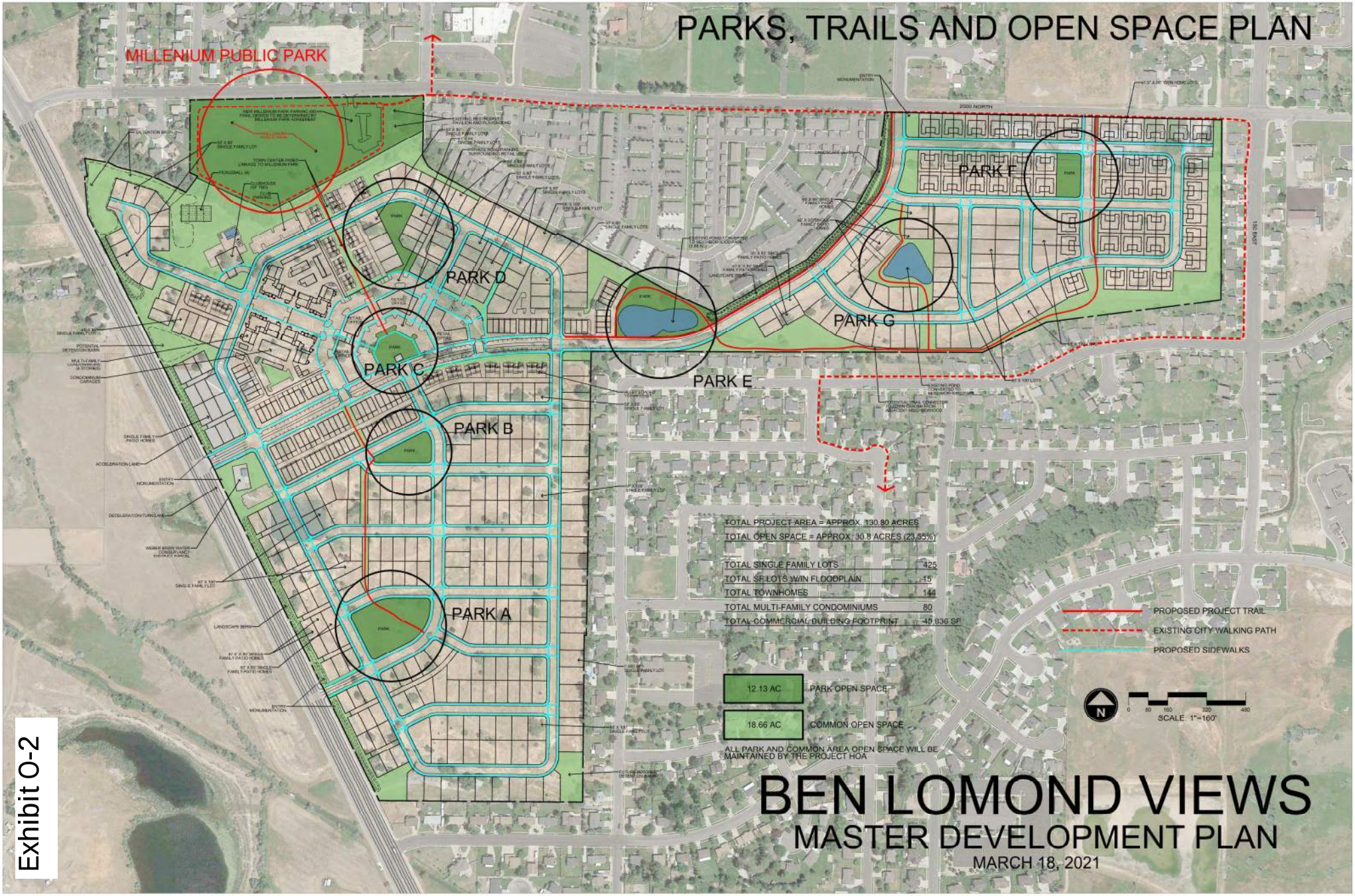

PARKS, TRAILS AND OPEN SPACE PLAN
MILLENIUM PUBLIC PARK
PARK A
PARK B
PARK C
PARK D
PARK E
PARK F
PARK G
2500 NORTH
1500 EAST
TOTAL PROJECT AREA = APPROX. 130.80 ACRES
TOTAL OPEN SPACE = APPROX. 30.8 ACRES (23.55%)
TOTAL SINGLE FAMILY LOTS 425
TOTAL SF LOTS W/IN FLOODPLAIN 15
TOTAL TOWNHOMES 144
TOTAL MULTI-FAMILY CONDOMINIUMS 80
TOTAL COMMERCIAL/ BUILDING FOOTPRINT 49,936 SF
PROPOSED PROJECT TRAIL
EXISTING CITY WALKING PATH
PROPOSED SIDEWALKS
12.13 AC PARK OPEN SPACE
18.66 AC COMMON OPEN SPACE
ALL PARK AND COMMON AREA OPEN SPACE WILL BE MAINTAINED BY THE PROJECT HOA
N
0 80 160 320 480
SCALE: 1"=160'
BEN LOMOND VIEWS
MASTER DEVELOPMENT PLAN
MARCH 18, 2021
Exhibit O-2

Exhibit O-3





Playground w/ Shade Structure over playground



Swing Set



Shade Pavilion w/ Picnic Tables



Bench



Litter Receptacle



Pet Waste Station



Sidewalk Walkway



Ramp into Playground

Ben Lomond Views

LDG

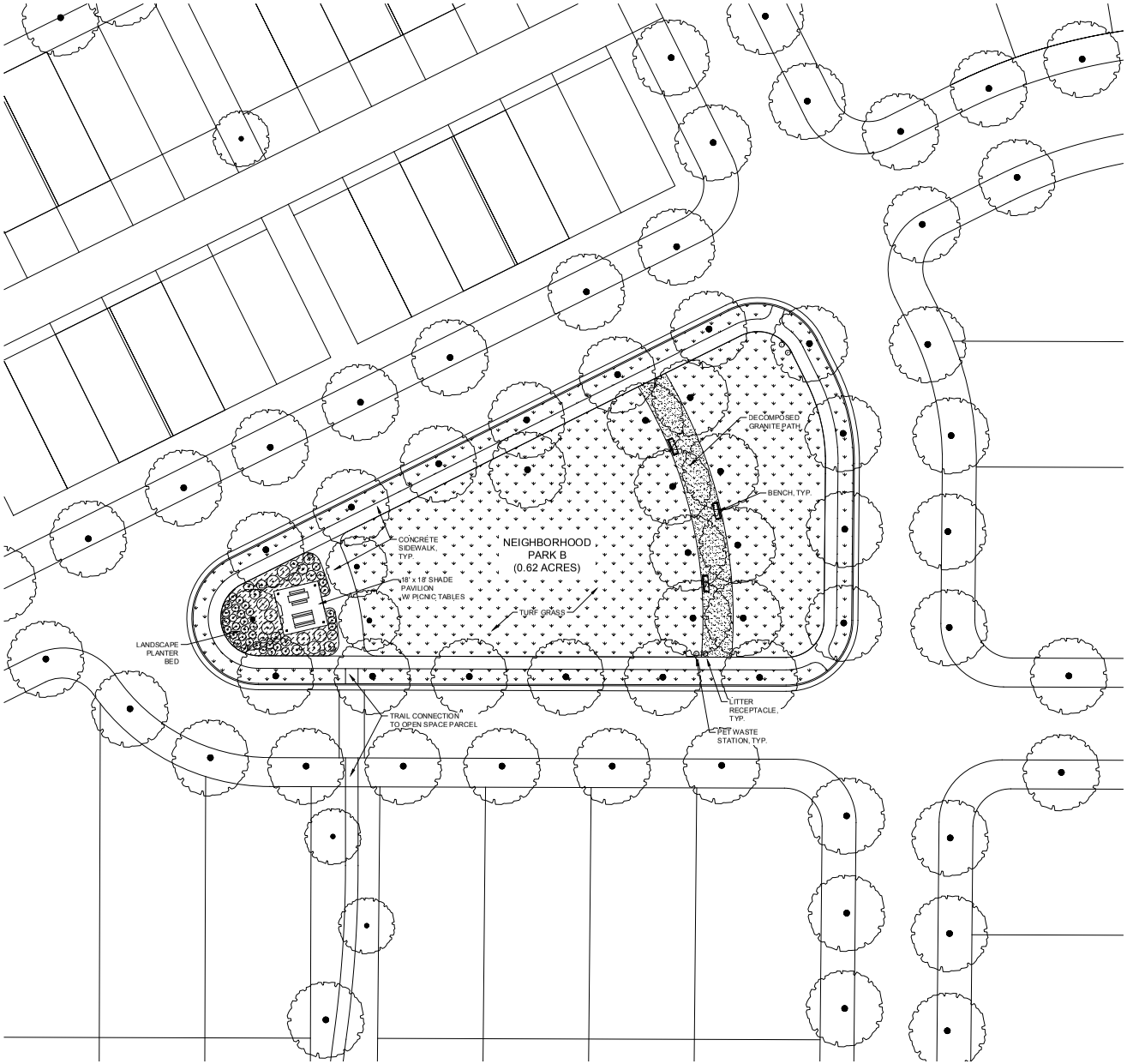
Park A

October 23, 2020

N

0 10 20 40 60

SCALE: 1" = 20'




Shade Pavilion w/ Picnic Tables


Decomposed Granite Pathway w/ bench


Bench


Litter Receptacle


Pet Waste Station


Sidewalk Walkway

Ben Lomond Views

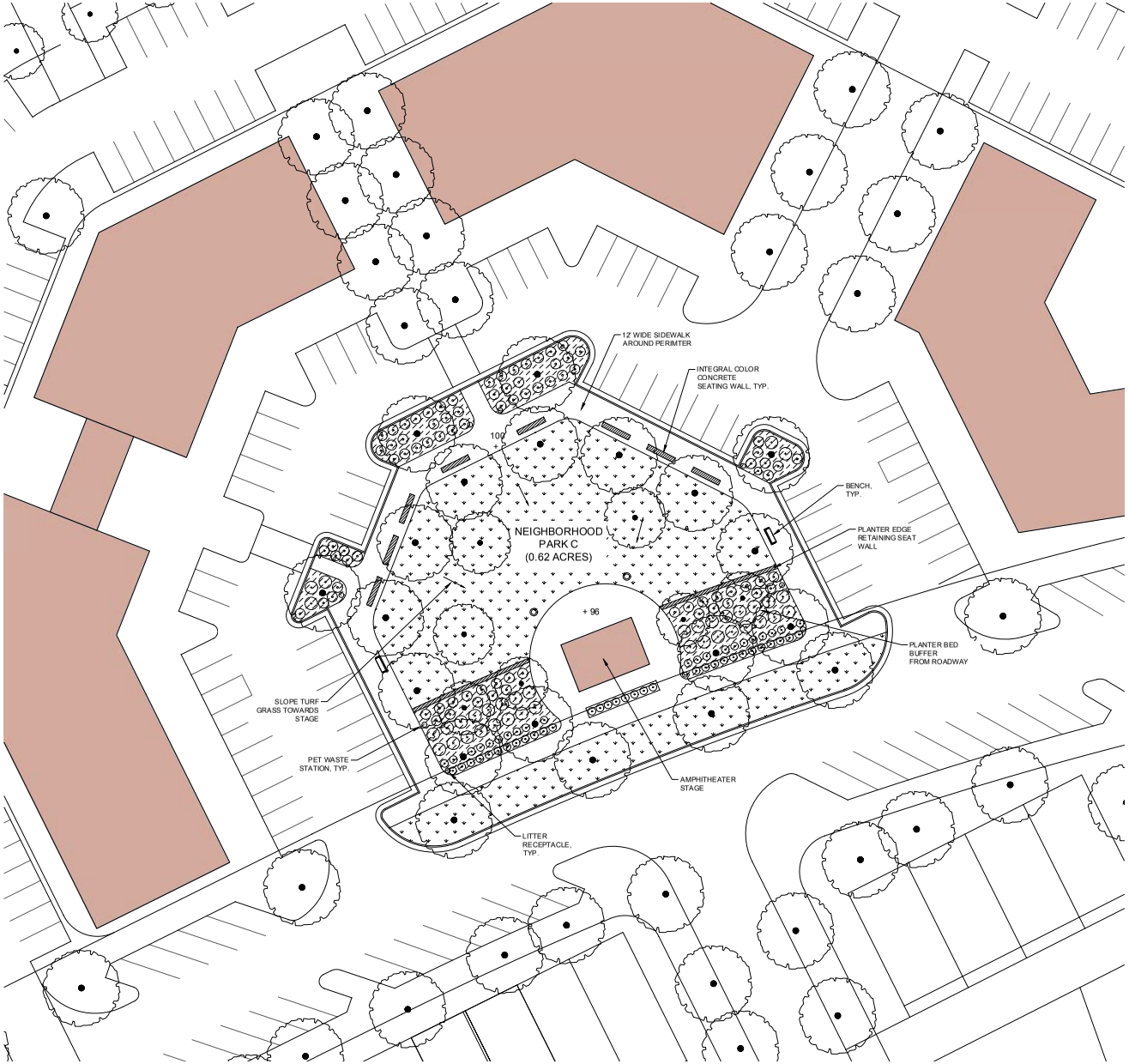
Park B

October 23, 2020

N

0 10 20 40 60

SCALE: 1" = 20'





Amphitheater Stage w/ sloped grass seating





Integral Color Concrete Seat Wall



Retaining Seat Wall in Planter Bed



Bench



Litter Receptacle



Pet Waste Station

Ben Lomond Views

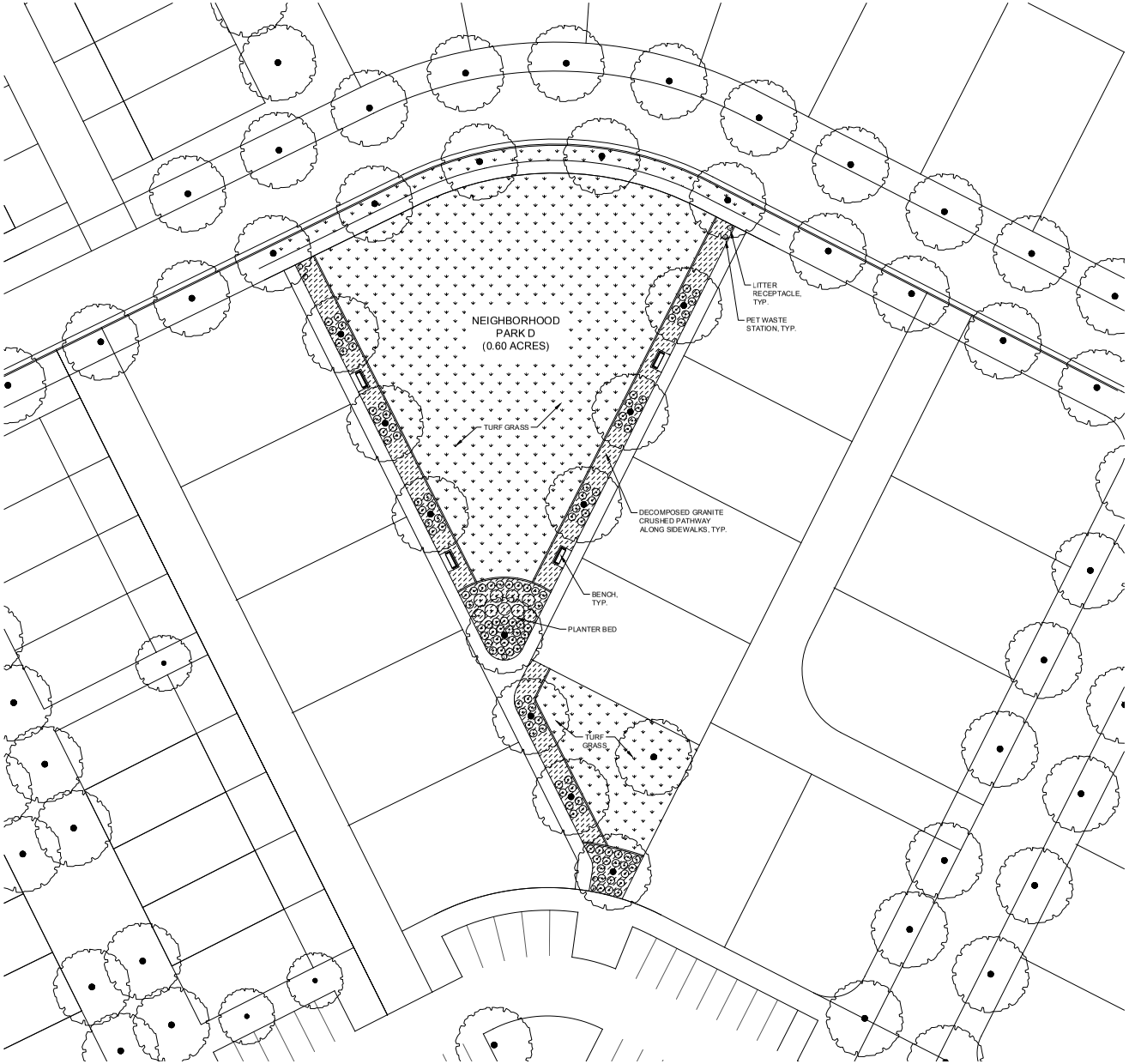
Park C

October 23, 2020

N

0 10 20 40 60

SCALE: 1" = 20'





Turf Grass w/ Plantings



Shrub Bed Planting



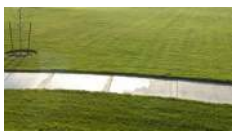
Bench



Litter Receptacle



Pet Waste Station



Sidewalk Walkway

Ben Lomond Views

LDG

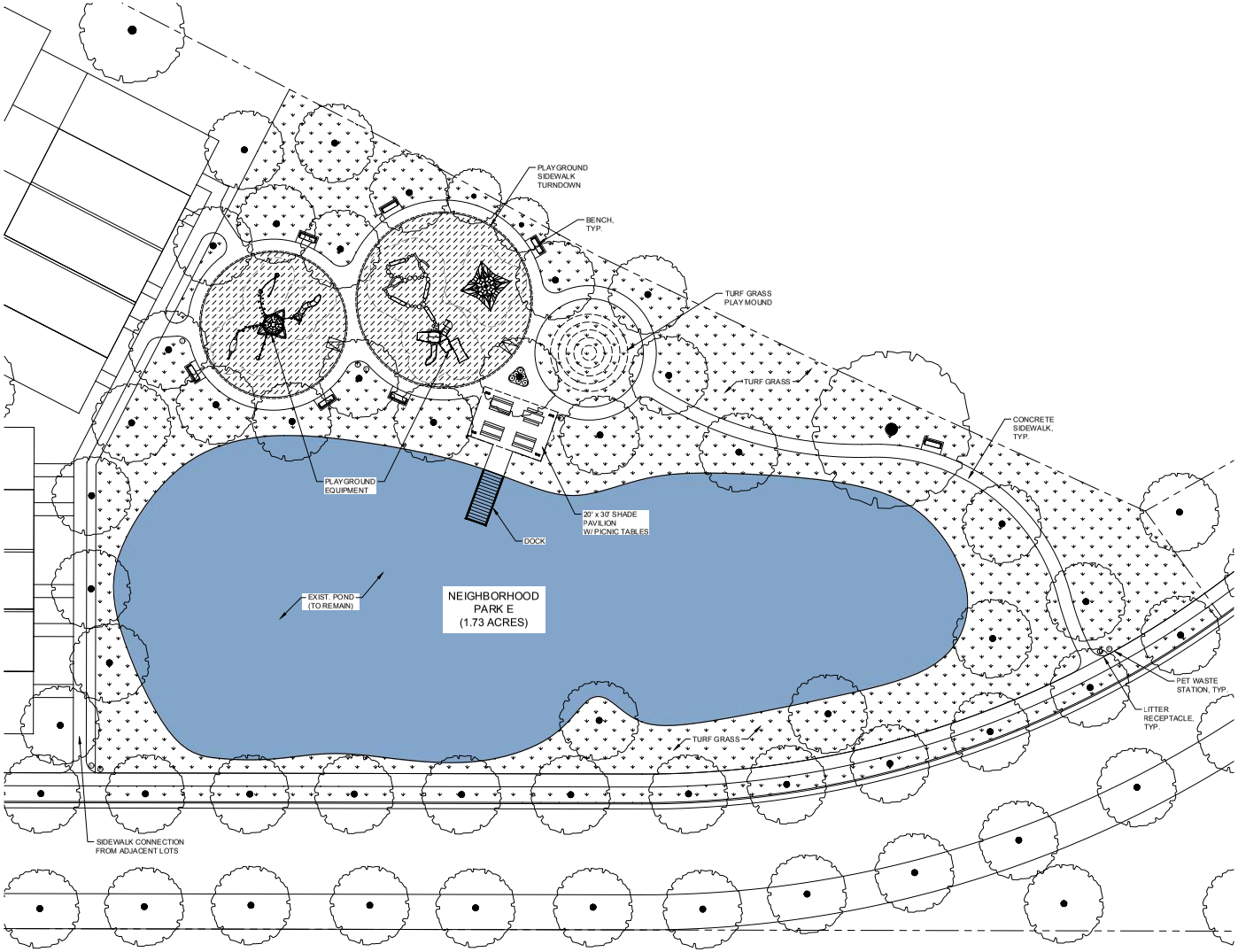
Park D

October 23, 2020

N

0 10 20 40 60

SCALE: 1" = 20'




Pond with turf grass


Viewing Dock in Pond


Playground Equipment




Turf Grass Play Mound


Shade Pavilion w/ Picnic Tables


Bench


Litter Receptacle


Pet Waste Station


Sidewalk Walkway

Ben Lomond Views

LDG

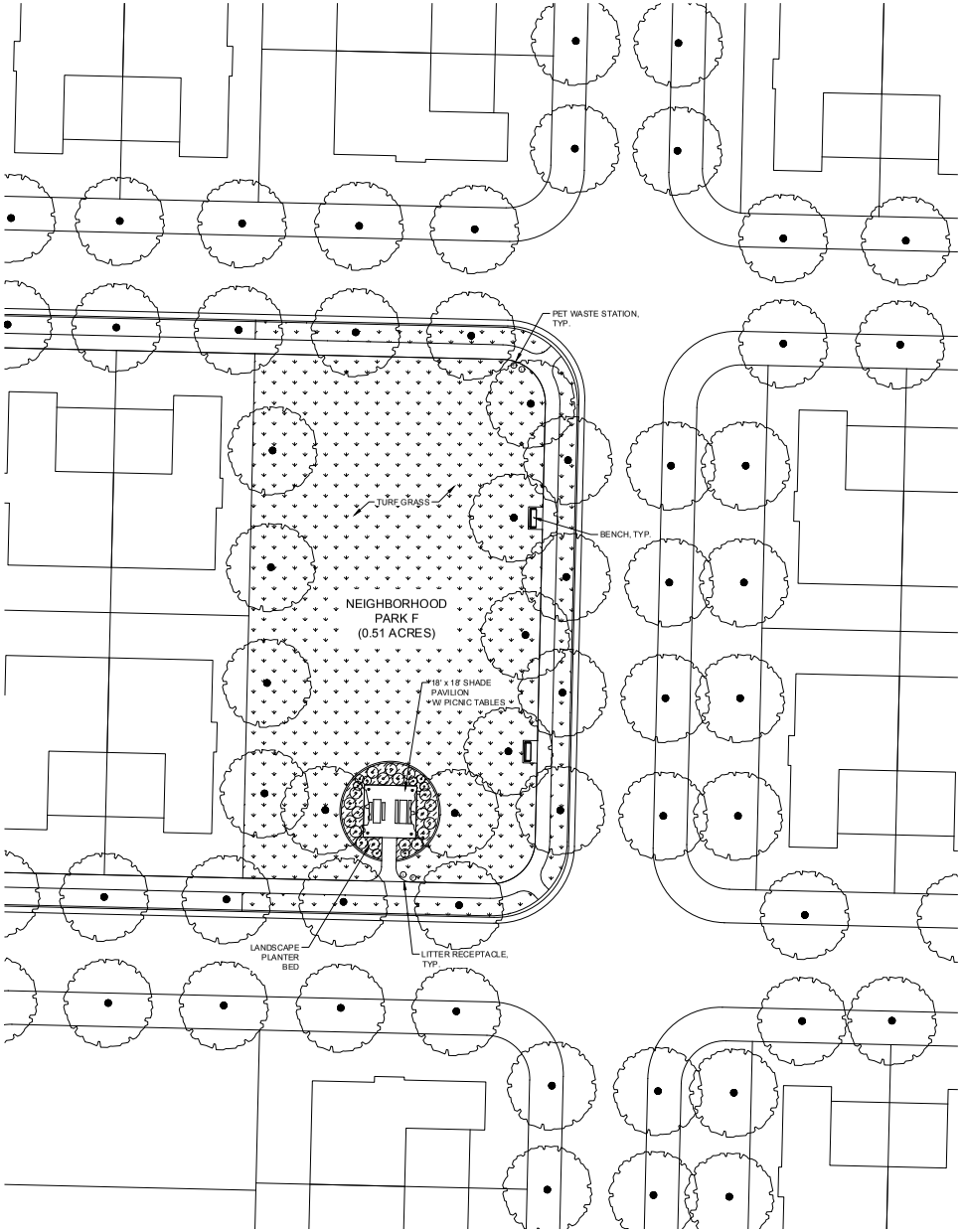
Park E

October 23, 2020

N

0 10 20 40 60

SCALE: 1" = 20'





Shade Pavilion w/ Picnic Tables



Park Lawn Area



Bench



Litter Receptacle



Pet Waste Station



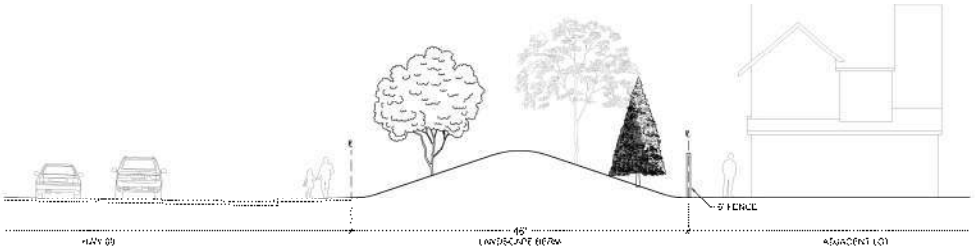
Sidewalk Walkway

Ben Lomond Views

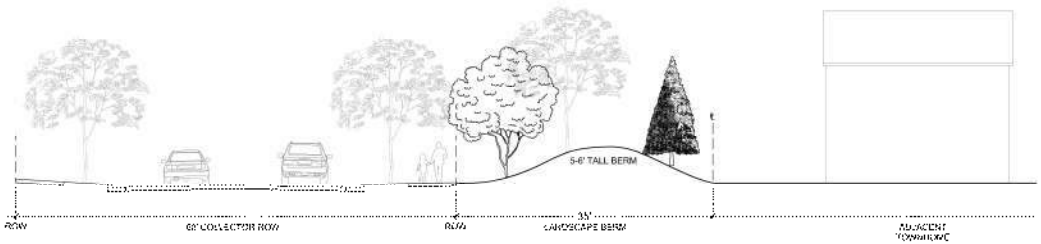
Park F

October 23, 2020

SCALE: 1" = 20'



1 BERM AND FENCE ALONG HWY 89
SCALE: NTS



2 LANDSCAPE BERM ALONG PROJECT COLLECTOR ROAD
SCALE: NTS

FENCING OPTIONS - TBD TO MATCH ARCHITECTURAL STYLE OF ADJACENT DEVELOPMENT



Ben Lomond Views

LDG

Landscape Berms and Fence

May, 2021

Exhibit O-4



L A N D S C A P E S T A N D A R D S

FOR

BEN LOMOND VIEWS

MARCH 2021

SECTION 1
LANDSCAPE STANDARDS

This chapter sets forth Guidelines and Standards for the landscape development of each Parcel and each Homesite and the development in general including grading, drainage, planting and the design of outdoor living areas. All development must meet these landscape standards. All development with the exception of single family lots must submit landscape plans for approval to the Architectural Review Committee as required.

The intent of these Design Guides is to establish the landscape character of the project while creating new Improvements that merge with the natural topography and existing landscape. The design objectives, as applicable to landscape design, are to be addressed in the design of each Homesite and throughout each development parcel within the Project.

Landscape Improvements should incorporate, rehabilitate and enhance existing vegetation, utilize indigenous and/or regional species of plant materials, and minimize areas of intensive irrigation. New trees and shrub plantings are to be a mix of sizes that will blend naturally into the surrounding area. The landscape design goal should be to gradually transition from the Structure or built element to match adjacent landscapes and/or enhance existing native landscape patterns.

The overall Landscape design objectives for the Ben Lomond Views are listed below:

• Use landscape design elements to connect built structures with the land. Buildings are to step down at their edges and incorporate architectural/ landscape "extensions" such as battered foundations, low walls and terraces.

• Preserve and enhance streetscapes through street tree plantings and mass plantings within street corridors.

• Use landscape materials that are available locally or regionally. All parcels and homesites should use those plant materials from the approved plant lists and should source these materials locally or regionally to insure the highest success rates and to enhance the project's sustainability initiatives.



8.1 General Conditions

All trees, shrubs and ground covers external to the house in the front yards or not hidden and within enclosed yards or courtyards shall be locally adaptable and chosen in keeping with the style of the development.

A list of allowed plant species follows as a guide. No invasive alien plants will be allowed anywhere on the development. Non-invasive lawn species should be used. The use of plants used traditionally in intermountain landscapes is encouraged.

8.1.1 Trees

Trees are a critical landscape component of the Project and should be a priority on any site. Trees are critical to provide shade and cooling effects, providing a sense of enclosure, providing definition and scale to the street, protection from wind, separation from automobile traffic, and reducing airborne dust and pollutants. Non native large tree species are allowed, but their use is primarily to be encouraged in back yards or in limited capacities. Smaller flowering character trees are always encouraged and should be used extensively throughout the Project.

For front yards, must contain a minimum of 1 deciduous tree (min. 2" caliper size) in addition to trees located in the park strip.

For back yards, must contain minimum of one deciduous shade tree (min. 1-1/2" caliper size). Shall be placed at least 6 feet from property lines. Variance may be granted for smaller homes that are part of a cluster, paseo or cottage court that cannot meet this requirement.

8.1.2 Shrubs

The shrubbery used is to be diverse. Shrubs in front yards will primarily be loose and natural looking. Less emphasis is to be put on evergreen hedges or architectural groupings and more on seasonal interest and natural massings. Shrubs at the foundations of houses should be more organized and be done in more classic American Cottage style. There are to be loose hedges and focal points at the bases of porches and decks. Potted shrubs, formal garden hedges and layers of changing colors will be used primarily around the front and sides of key outdoor spaces. Shrubs used will also come from the approved list of species that is part of this section.

8.1.3 Ground Covers

Groundcovers are an effective way to visually and environmentally cover vast areas of soil. Groundcovers are to be used where applicable in lieu of turf grass. Many ground covers are acceptable but the preferred types are natives that provide seasonal interest and cover.

8.1.4 Lawns

Vast areas of manicured grass are not desirable in this Project. The water requirement, maintenance and regular fertilization that is required by lawns is incongruent with the environmentally sensitive nature of the development. However, lawns are still permitted but are to be limited in size and location. Neighborhood parks and common area open spaces are designed to provide larger areas of turf for the shared use by residents of the Project. All lawn areas must be large enough for practical use (min. of 5' wide) and be located no closer than 2 feet from foundations (house and garage). Lawn area on any individual lot must not exceed 60% yard coverage. Artificial turf is not permitted.

8.1.5 Annuals or High Maintenance Flowering Ornamental Shrubs

Annuals are generally discouraged in favor of perennial flowers. It will be incumbent on any home owner planting annuals, roses, or the like to maintain these plants and replace them in accordance with general professional landscape practices.

8.2 Street Trees

Street trees are essential for creating beauty and improving the quality of life. Street trees should be located in various locations throughout the Project including:

- Within the parkstrip to enhance the streetscape;
- Around intersections to reinforce traffic calming;
- In parking areas to provide shade for vehicles and to break up expanses of asphalt;
- In public spaces;
- Adjacent to buildings, and
- At focal areas such as sign features or gateways.

Street trees within the parkstrip shall be provided by the Developer of that Parcel fronting the parkstrip and should be species selected from the Street Tree Plant List. All trees planted within the park strip to be min. 2" caliper size. Location and amount number outlined on plot plan. Plant species should be selected for a particular location based on the following considerations:

- The ultimate growth, height and spread of the tree canopy in order to allow for unrestricted growth and as appropriate for the site condition;
- The density of the canopy, ultimate shape and branching pattern. Trees will provide varying degrees of shade due to branching habits and size and type of leaf;
- Access to adequate sunlight and rain water. Considerations of other micro climatic limitations such as reflected light sources from surface pavements and buildings and increased wind and snow load caused by building design should be considered when locating trees either on the street or as part of a site plan development;
- The location of existing and proposed utilities to allow uninhibited growth without disturbance to the tree crown or root zone;
- Maintenance requirements of street trees including watering, fertilizing, pruning and repair of damage caused naturally and by humans, i.e. removal of bark and broken branches;
- Height of the tree canopy to protect sightlines along the street for both motorists and pedestrians.
- Tree litter such as berries or seed pods that may be inappropriate for high traffic areas.
- The ability to withstand harsh conditions. Trees located in sidewalks or other hard surface areas will require adequate tree pits and surface grates that allow for air, water and regular maintenance.

8.3 Parkstrip

For those lots or parcels located in areas where a parkstrip is provided or planned, the parkstrip will be designed, installed and maintained by the individual lot owner or parcel developer.

The park strip must be planted with 80% coverage of approved plant material. Irrigation is required.

It shall be the property owner's responsibility to ensure that erosion does not deposit soil or other material on sidewalks or in the street. Materials such as bark, shredded plant material, and compost, may be used as water conserving mulch for plants and may also be used as the only material in portions of a park strip.

Gravel, rocks, and landscape cobble up to 2" diameter may be used on portions of the park strip. Large diameter rocks and boulders are not permitted. Rock mulch to be neutral in color - no red or white rock. Organic mulch shall be used near street trees to protect them from mowers. No annuals are allowed within the park strip landscape.

All Parkstrip plantings must meet City site visibility standards.

8.4 Street Frontage - Front Yard

This zone is one of the most important areas of all the landscaping. The Street Frontage sets the tone for the entire development. As this area will be viewed both by pedestrians and by passing cars, its scale must be appropriate for each.

Requirements:
1. Landscape:

• Single Family - The Street Frontage is to include more detailed plantings with massings of color and seasonal interest. In most cases it is desirable for this zone to be planted in small turf beds, perennials, ground covers and small to medium shrubs. Trees are permitted as long as their branches will be 7' above the sidewalk or plaza areas and may include flowering/ornamental varieties.

• Multi Family - In this zone the sidewalks dominate the frontage and landscape space is typically confined to narrow foundation strips, raised planters, potted plants or cut outs in the sidewalk. The Street Frontage landscape is typically to be highly detailed and organized plantings of herbs, ground covers, perennials, annuals, small shrubs, ornamentals, and trees in dedicated planters and landscape areas. Trees must be suitable for urban environments and have clear trunks to 7'.

• Town Center - In the community zone landscape will be very similar to the Village Multi Family. Most if not all plants will be in planters or cut out areas between pedestrian hardscapes. All plants must be hardy and able to withstand the micro-climate it may be within. Planters must be irrigated. All trees must be well suited to urban conditions and confined spaces. Flowering shrubs, grasses and eye catching perennials are encouraged for planters and beneath trees.

2. Walls and hardscape features are encouraged as long as the details and workmanship match the architecture and design of the community and home.
3. Vines and similar pedestrian scale plants are encouraged to be planted on walls, hardscape elements, and in pots, etc.
4. Street Frontage mulch is to be either: soil pep, shredded bark, or landscape cobble sized as appropriate for plantings.
5. Street Frontage shall have improved soils as required. Where top soil has been removed as part of grading, organic material is to be amended prior to planting.
6. Lighting is restricted to step lights, wall sconces or decorative cap lights on pilasters.
7. Plants in this zone must not excessively screen the houses from view.
8. Plants in this zone should not include varieties that send out long runners with thorns unless they can be easily maintained so as not to create a hazard.

8.5 Foundation Plantings

All the plants that fall within the 5 to 6 feet of planting space immediately adjacent to the foundation of the house/building/unit and attached structures (trellis, garage, out building) are foundation plantings. This zone is an area where shrub masses and hedges of shrubs are preferred. Typically there will be no trees planted in this zone except for miniature or dwarf varieties. All landscaping in this zone should work to compliment the architecture and provide street appeal. The front door should generally be seen easily from the street. Hedges should be of species that are easily maintained and suitable for foundation coverage. Much thought should go into selection of appropriate plants to go below windows which are low. Plants should be chosen that will not require repeated pruning throughout the year but rather annual or bi-annual pruning only. Plants known to get pest problems requiring pesticides should be avoided. In addition these are passive use areas and as such they should have simple plantings.

Requirements:
1. Landscape:

• Single Family - Massing shrubs and hedges with key focal points anchored with evergreen or similar shrubs is appropriate. Hedges of flowering or seasonally interesting shrubs or grasses are desirable.

• Multi Family - Where this zone is present massing shrubs and hedges with key focal points anchored with evergreen or similar shrubs are required.

• Town Center - Same as Multi Family

2. Exterior mechanical equipment must be substantially screened by foliage within 24 months of planting and maintained to sufficiently screen these items.
3. Vines and similar plants are encouraged to be planted on walls, foundations, etc.
4. Mulch is to be either soil pep, mulched bark or landscape cobble.
5. Landscape Planting areas have improved soils as required. Where top soil has been removed as part of grading, organic material is to be amended prior to planting.
6. Lighting is restricted to step lights, path lights, up lights, decorative post lights, wall sconces or decorative cap lights on pilasters.
7. Irrigation in this zone is required to be 'drip' irrigation.
8. Sod typically does not go against the foundation but may be planted here if it suits the space design.
9. Plants in this zone must not excessively screen the houses from view. The front door must remain visible. No more than 30% of any window's total area is to be covered by foliage from shrubs planted below.

8.6 Side Yards

All the plants and planting areas that fall between the side property line and the foundation shrubs are considered the side yard. This zone is an area where shrub masses and hedges of shrubs are preferred. Landscaping here should aid in providing privacy as well as in framing the house. Large trees to provide shade and evergreen shrubs to block unwanted views are desirable. Plantings should be looser within larger lots and more defined on smaller village lots. Hedges may be larger varieties here. Plants should be chosen that will not require repeated pruning throughout the year but rather annual or bi-annual pruning only. In addition these are passive use areas and as such they should be simple plantings.

Requirements:
1. Landscape:

• Single Family - Side yards will often be very tight so thoughtful planting here is critical. Sod is permitted here.

• Multi Family - Not typically present except on corners or ends. Where this zone is present, massing shrubs and hedges with key focal points anchored with evergreen or similar shrubs are required. Corner lots require detailed plantings along road sides and will most often be mixed with retaining walls/boulders. Perennials and flowering shrubs are desired in these instances.

• Town Center - Not typically present except on corners or ends. Where this zone is present, massing shrubs and hedges with key focal points anchored with evergreen or similar shrubs are required. Corner lots require detailed plantings along road sides. Perennials and flowering shrubs are desired in these instances.

2. Exterior mechanical equipment must be substantially screened by foliage within 24 months of planting and maintained to sufficiently screen these items.
3. Vines and similar plants are encouraged to be planted on walls, foundations, etc.
4. Side yard design for all areas is to be designed and or approved by the Community L.A., developer representative or assigned HOA representative.
6. Mulch is to be either soil pep, mulched bark or landscape cobble.
7. Landscape Planting areas have improved soils as required. Where top soil has been removed as part of grading organic material is to be amended prior to planting.
8. Lighting is restricted to step lights, path lights, up lights, decorative post lights, wall sconces or decorative cap lights on pilasters.
9. Irrigation in this zone is required to be 'drip' irrigation.
10. Plants in this zone must not excessively screen the houses from view. No more than 30% of any window's total area is to be covered by foliage from shrubs planted below.

8.7 Rear Yards

Rear yards may be planted in any style reflecting the home owners taste and style as long as the style compliments the architecture and other elements in the garden. This zone is typically an active use area where family entertaining and gathering occurs. Patios, terraces, decks, pools, gazebos, etc. are encouraged in these areas. The use of massing for privacy and lot definition in the rear is encouraged. Landscaping here should aid in providing privacy as well as in framing the yard. Large trees to provide shade and evergreen shrubs to block unwanted views are desirable. Hedges may be larger varieties here. Large natives are highly desirable in these locations. In addition these are active use areas and as such their should be detailed plantings. Groupings of shrubs with many specimens or collectors plants placed appropriately with other plants are highly desirable.

Requirements:
1. Landscape:

• Single Family - Rear yards may be more extensive on some lots and less on others. Sod may be used in rear yards to create small lawns or play areas. Landscape should complement architecture and plantings should be scaled to the size of the rear yard.

• Multi Family - Not typically present. Where this zone is present, small detailed courtyard style gardens are preferred.

• Town Center- Not typically present. Where this zone is present, small detailed courtyard style gardens are preferred or transitional landscapes that buffer or screen parking lots or service areas.

2. Exterior mechanical equipment must be substantially screened by foliage within 24 months of planting and maintained to sufficiently screen these items.
3. Vines and similar plants are encouraged to be planted on walls, foundations, etc.
4. Mulch is to be either soil pep, mulched bark or landscape cobble.
5. Landscape Planting areas have improved soils as required. Where top soil has been removed as part of grading, organic material is to be amended prior to planting.
6. Lighting is restricted to step lights, path lights, up lights, decorative post lights, wall sconces or decorative cap lights on pilasters.
7. Irrigation in this zone is required to be 'drip' irrigation except for sod areas.

8.8 Landscape Enhancement Zones

Specific Homesites may require a Landscape Enhancement Zone (LEZ). Landscape Enhancement Zones are areas of the Homesite that require a special landscape screening treatment to obscure or soften views of any built Improvements as viewed from public areas, including, but not limited to, roads, trails, public amenities, walkways, plazas, etc. The Architectural Review Committee will work with the Owners on a case-by-case basis to determine what particular landscape treatment, relative to plant species, height, density and placement, is required for the individual Homesite.

8.9 Maintenance

8.9.1 Common Areas

Ben Lomond Views master developer and or the individual Homeowners association(s) will contract with a professional maintenance company which will maintain all common areas within the Project.

8.9.2 Residences

Each individual homeowner is responsible to provide maintenance for all landscape and hardscape elements within the public street or road right of ways. Snow maintenance for all sidewalks fronting a lot or parcel is the responsibility of that lot or parcel owner.

All turf grass areas must be kept neat and regularly mowed. Turf grass over 6" in height is not permitted unless the turf is a naturally maintained meadow grass turf variety installed for waterwise planting such as BIO-MEADOW from BIO-GRASS or equal.

All plants must be kept from spreading to neighboring lots except where an agreement for such is reached between two neighbors or when the same such plant is already planted on the adjacent lot.

Dangerous trees or branches are to be removed when notified or when identified as such by the Architectural Review Committee.

Use of annuals in community maintained areas of the lot is discouraged as the HOA will not replace or maintain them. The home owner is solely responsible for regular and timely seasonal replacement of annuals in accordance with typical professional landscape practices. The same applies for any high maintenance plants added by the homeowner. Roses for example will not be maintained adequately by the community landscape company.

8.10 Irrigation

All irrigation in landscape beds is highly recommended to be 'drip' irrigation. The use of spray irrigation is to be limited to those approved turf areas within a lot or parcel or the temporary irrigation of revegetated native areas. Irrigation is to be appropriately zoned for xeri-scape practices, meaning shrubs and plant materials requiring less water are to be zoned separate from sod and plants requiring more water. All irrigation boxes should be located on the exterior of the house on a side and screened from view. Locating boxes outside will allow the maintenance company to shut off the systems should the need arise. Utilize water-efficient irrigation systems such as: smart irrigation controller, low flow sprinkler heads and drip irrigation.



Diverse landscape with minimal irrigation needs.

8.11 Grading And Retaining

Grading and Retaining is an important part of the Project landscape. All development should preserve the integrity and form of the natural landscape by responding sensitively to existing topography and maintaining the natural drainage patterns and to conserve the general visual character of grading/clearing sites and settings.

Requirements:

• All work on roads, driveways or lots must be done in a manner that minimizes disruption and alteration of existing topography and must transition naturally across the development. Over-excavation or excessive clearing of cut and fill slopes will not be allowed.

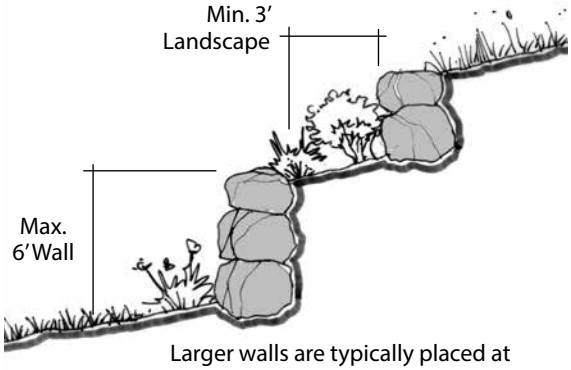
• The maximum gradient allowed on cut and fill slopes shall not exceed 3:1. All approved cut and fill slopes shall be revegetated by the placement of topsoil, plant materials, and/or the approved seed mix appropriate for slope stabilization within the time frame specified by Harrisville City.

• Proposed stacked rock or stone retaining walls shall not exceed 6 feet where they are necessary. A system of 4' to 6' walls (i.e. tiered walls) with no individual wall exceeding 6' may be used. The walls shall be separated by a minimum 3' landscaped area from top back of lower wall to toe of upper wall.



Minimum 3' landscaped shelf between walls

Tiered Retaining Wall Section



Larger walls are typically placed at the bottom of a tiered wall system

• Structural walls may exceed 6' in height but must meet the goals and objectives herein to transition to the natural landscape and compliment the structures relationship to the landscape.

• Site grading shall be approved on a determination not only of its impact on the natural landform and existing vegetation, but also on the determination of the visual impacts that may result from the grading.

• The construction of cut and fill slopes will be performed to neat and clean lines that are visually appealing.

• Every attempt must be made to minimize cut and fill necessary for the construction of a home to reduce heavy truck traffic to the home site. The project developer is providing an on-site excavation storage area for any materials to be re-used.

• No excess fill may be placed on a lot. Fill locations within the development may be appropriate for excess fill placement and lot owners are encouraged to coordinate with the master developer for location and timing if possible.

8.12 Plant List

The following list serves only as a basic list of approved plants. This is not meant to be a complete list but rather a starting point for research. Plants that are not on this list may be used as approved by the Architectural Review Committee. Any plant on this list is acceptable for use as long as it is appropriate for the location where it is intended to be used as per these Landscape Guides.

TREES

Botanical Name-Common Name

Acer x freemanii - Autumn Blaze Maple
Acer ginnala - Amur Maple
Acer glabrum - Rocky Mountain Maple
Acer griseum - Paperbark Maple
Acer negundo - Sensation Box Elder Maple
Acer platanoides - Norway Maple
Acer rubrum - Northwood Red Maple
Acer truncatum - Crimson Sunset Maple
Alnus incana - Thinleaf Alder
Amelanchier x grandiflora - Autumn Brilliance Serviceberry
Betula occidentalis fontinalis - Western Red Birch
Carpinus betulus fastigiata - Pyramidal Hornbeam
Cedrus atlantica glauca - Blue Atlas Cedar
Crataegus crus-galli 'Inermis' - Thornless Cockspur Hawthorn
Cercis canadensis - Eastern Redbud
Juniperus scopulorum-Rocky Mountain Juniper
Koelreteria paniculata - Golden Raintree
Malus spp. – Crabapple
Picea abies - Hillside Upright Spruce
Picea pungens glauca - Bakerii Blue Spruce
Picea pungens glauca - Hoopsii Blue Spruce
Pinus edulis - Pinyon Pine
Pinus flexilis 'Vanderwolfe' - Vanderwolfe Pine
Pinus leucodermis 'Heldrechii' - Bosnian Pine
Prunus cerasifera - Minnesota Newport Plum
Prunus mackii - Amur Chokecherry
Prunus padus - Mayday Tree
Prunus virginiana – Chokecherry
Pseudotsuga menziesii - Douglas Fir
Pyrus calleryana – Flowering Pear
Quercus gambelii - Gambel Oak
Robinia pseudoacacia - Purple Robe Black Locust
Thuja occidentalis 'Smargd' - Emerald Green Arborvitae

STREET TREES

Botanical Name-Common Name

Acer x freemanii 'Jeffersred' - Autumn Blaze Maple
Acer miyabei 'Morton' - State Street Maple
Acer platanoides 'Crimson King' - Crimson King Maple
Acer platanoides 'Columnarbroad' - Parkway Maple
Acer platanoides 'Princeton Gold' - Princeton Gold Maple
Acer rubrum 'Bowhall' - Bowhall Maple
Acer rubrum 'Franksred' - Red Sunset Maple
Celtis occidentalis - Hackberry
Crataegus x lavallei - Carriere Hawthorn
Fraxinus pennsylvannica 'Patmore' - Patmore Ash
Gleditsia triacanthos 'Skycole' - Skyline Honeylocust
Malus 'Spring Snow' – Spring Snow Crabapple (fruitless)
Prunus virginiana – Chokecherry
Prunus virginiana – Canada Red Chokecherry
Pyrus calleryana – Flowering Pear
Tilia cordata 'Greenspire' - Greenspire Linden
Ulmus 'Frontier' - Frontier Elm

SHRUBS

Botanical Name-Common Name

Amelanchier alnifolia - Saskatoon Serviceberry
Artemisia tridentata - Big Sage
Atriplex canescens - Four Wing Saltbrush
Berberis thunbergii atropurpurea - Red Leaf Barberry
Berberis thunbergii atropurpurea -
Rose Glow Barberry
Berberis thunbergii atropurpurea -
Crimson Pygmy Barberry
Buddleia davidii - Butterfly Bush
Buxus microphylla asiatic 'Winter Gem' - Boxwood
Caragana arborescens - Siberian Pea Shrub
Caryopteris x clandonensis - Blue Mist Spirea
Cercocarpus ledifolius - Curleaf Mountain Mahogany
Chrysothamnus nauseosus - Rubber Rabbitbrush
Cornus alba - Variegated Dogwood
Cornus sericea flaviramea - Yellowtwig Dogwood
Cornus sericea - Redtwig Dogwood
Cornus sericea - Isanti Dogwood
Cornus sericea - Kelseyi Dogwood
Cornus sericea - Alleman's Compact Dogwood
Cornus sericea - Baileyi Dogwood
Cotoneaster acutifolius' - Peking Cotoneaster
Daphne burkwoodii 'Carol Mackie' - Daphne
Euonymus alatus 'compacta' - Dwarf Burning Bush
Fallugia paradoxa - Apache Plume
Forsythia - Northern Gold Forsythia
Hydrangea arborescens - Annabelle Hydrangea
Juniperus communis - Common Juniper
Juniperus horizontalis - Bar Harbor
Horizontal Juniper
Juniperus horizontalis - Blue Chip Horizontal Juniper
Juniperus sabina - Broadmoor Juniper
Juniperus sabina tamariscifolia - Tam Juniper
Hibiscus syriacus - Rose of Sharon
Lonicera tatarica - Tatarian Honeysuckle
Mahonia aquifolium - Oregon Grape
Mahonia aquifolium compacta - Compact
Oregon Grape
Paxistima myrsinites - Mountain Lover
Philadelpus lewisii - Mock Orange
Physocarpus malvaceus – Ninebark
Pinus mugo - Mugo Pine
Pinus mugo - Big Tuna Mugo Pine
Photinia x fraseri - Fraser's Photinia
Picea abies 'Nidiformis' - Bird Nest Spruce
Pinus mugo - Mugho Pine
Potentilla fruticosa - Shrubby Cinquefoil
Purshia tridentata - Antelope Bitterbrush
Rhus glabra - Smooth Sumac
Rhus trilobata - Three Leaf/Oakbrush Sumac
Ribes alpinum - Alpine Currant
Ribes aureum - Golden Currant
Rosa Woodsii - Wood's Rose
Rose sp. - As appropriate for High Altitudes
Salix spp. - Willow
Sambucus canadensis - Adams Elderberry
Sambucus canadensis aurea - Golden Elderberry
Shepherdia argentia - Buffalo Berry
Sorbaria sorbifolia - Ashleaf Spirea
Spiraea sp - Spiraea
Symphoricarpos albus - Common Snowberry
Syringa patula - Miss Kim Lilac
Syringa vulgaris - Common Lilac
Taxus spp. - Yew
Viburnum dentatum - Autumn Jazz Cranberry
Viburnum trilobum - American Cranberry
Viburnum trilobum - Bailey Compact Cranberry

PERENNIALS

Botanical Name - Common Name

Aquilegia - Columine
Anemone 'Honorine Jobert' - Windflower
Artemesia - Sage
Aster frikarti ' Monch' - Monch Aster
Baptisia australis - Wild Indigo
Berlandiera lyrata - Chocolate flower
Callirhoe involucrata - Prairie Winecups
Catananche caerulea - Cupids' Dart
Centranthus ruber - Keys of Heaven
Coreopsis verticillata - Moonbeam Coreopsis
Delphinium - Larkspur
Dianthus - Pinks
Echinacea purpurea - Purple Coneflower
Eriogonum - Sulphur Flower
Gaillardia aristata - Blanket Flower
Gaillardia pinnatifida - Hopi Blanket Flower
Gaura coccinea - Scarlet Gaura
Gaura lindheimeri - Whirling Butterfly Gaura
Geranium - Wild Geranium
Hemerocallis - Daylily
Heuchera - Coral Bells
Iberis sempervirens - Candytuft
Ipomopsis aggregata - Scarlet Gilia
Iris missourensis - Missouri Iris
Kniphofia uvaria - Red Hot Poker
Lavandula angustifolia - English Lavender
Leucanthemum superbum ' Alaska' - Shasta Daisy
Lewisia cotyledon - Lewisia
Liatris spicata - Kobold Gay Feather
Linum lewisii - Blue Flax
Mondarda didyma - Coral Reef Bee Balm
Nepeta 'Walker's Low' - Catmint
Oenothera - Evening Primrose
Paeonia spp. - Garden Peony
Penstemon - Beard Tongue
Phlox paniculata - Phlox
Rudbeckia fulgida 'Goldsturm' - Black Eye Susan
Salvia - Perennial Salvia
Santolina - Cotton Lavender
Scabiosa columbaria 'Butterfly Blue' - Pincushion Flower
Sphaeralcea ambigua - Globemallow
Stachys byzantine - Lambs Ears
Veronica 'Sunny Border Blue' - Veronica

ORNAMENTAL GRASSES

Botanical Name - Common Name

Achnatherum hymenoides - Indian Ricegrass
Bouteloua curtipendula - Side Oats Grama
Calamagrostis acutiflora - Karl Foerster
Chasmanthium latifolium - Northern Sea Oats
Festuca ovina - Sheep Fescue
Helictrotrichon sempervirens - Blue Oat Grass
Miscanthus spp. - Maidengrass
Panicum spp. - Switchgrass
Pennisetum alopecuroides - Fountain Grass
Schizachyrium spp. - Little Bluestem

GROUNDCOVERS

Botanical Name - Common Name

Ajuga spp. - Bugleweed
Alyssum - Basket of Gold
Antennaria - Pussytoes
Arctostaphylos uva-ursi - Kinnikinnick
Delosperma - Hardy Ice Plant
Euonymus - Trailing Euonymus
Fragraria sp. - Strawberry
Gallium odoratum - Sweet Woodruff
Hypericum calycinum - St. John's Wort
Juniperus horizontalis - Wiltoni Juniper
Juniperus sabina - Calgary Carpet & Buffalo
Lamium sp. - Nettle
Lysimachia nummularia - Creeping Jenny
Mahonia repens - Creeping Oregon Grape
Phlox - subulata - Creeping Phlox
Poa pratensis - Kentucky Blue Grass
Potentilla verna nana - Spring Cinquefoil
Sedum - Stonecrop
Sagina sugulata. - Irish Moss
Thymus sp. - Thyme
Veronica sp. - Veronica

BULBS - As appropriate for Region

VINES

Botanical Name - Common Name

Hedera helix - English Ivy
Lonicera - Honeysuckle
Parthenocissus quinquefolia - Virginia Creeper
Wisteria - Wisteria

NATIVE GRASS SEED MIX

Granite Seed (801)-768-4422

Species	Planting Rate (Pls#'S/Acre)
Lolium Perenne Perennial Ryegrass	8.75
Elymus Trachycaulus Slender Wheatgrass	7.00
Pseudoroegneria Spicata V. Secar Bluebunch Wheatgrass	5.25
Pascopyrun Smithii Western Wheatgrass	5.25
Festuca Ovina Sheep Fescue	3.50
Linum Lewisii Blue Flax	1.00
A. Tridentata Sp. Wyomingensis Sagebrush	1.25
Total	32.00

Seeding should generally occur during the following seasons:
Spring - Spring thaw to May 1st
Fall - September 15th until consistent ground freeze.

Exhibit P

Maximum Residential Units

Single Family Units	**425**
Town Homes	**144**
Condominium Units	**80**
Maximum Residential Units	**649**
Single Family Units in Excluded Development Area	**15**
Maximum Residential Units With Excluded Development Area	**664**

Exhibit Q

Development Areas

Section 2.6.8 of the MDA permits the Master Developer to transfer Dwelling Units between or among Development Areas subject to certain limited and specified parameters as a matter of right without any approvals being required by the City. Development Areas on the Master Plan are shown in Exhibit Q-1. Up to two (2) single-family home, townhome or condominium Dwelling Units may be transferred between or among the residential Development Areas in Exhibit Q-1. Residential Development Areas do not include Area D, Clubhouse Area, and Area G, Town Center Area. Transfer may result in a change in the mix of residential units but the Maximum Residential Units cannot be exceeded.


DEVELOPMENT AREA PLAN
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
EXCLUDED DEVELOPMENT AREA
C DEVELOPMENT AREA
PENDING FLOODPLAIN
N
0 80 160 320 480
SCALE: 1"=160'
BEN LOMOND VIEWS
MASTER DEVELOPMENT PLAN
MARCH 18, 2021

Exhibit R

Maintenance Plan

The operation, maintenance, repair and replacement of all common areas including private roads; alleyways; parking areas; park and open area landscaping; park and open area equipment, fixtures and furniture including playgrounds; trails; the clubhouse and related recreational facilities; and the Town Center public areas will be performed by the Ben Lomond Views Owners Association, Inc. (HOA). The HOA will manage this task under contract with a professional management firm and the Maintenance Plan will be funded through the assessment of Members who are owners of lots and parcels.

Proper maintenance of individual residential areas will be the responsibility of unit owners subject to the terms of CC&R's.

All future improvements, including applications for building permits, will be subject to review and approval by the HOA Design Review Committee.

Exhibit S
Millennium Park Agreement

When Recorded Return to:
David W. Slaughter
Snow Christensen & Martineau
10 Exchange Place, 11th Floor
Salt Lake City, UT 84111

MILLENNIUM PARK EASEMENT AGREEMENT

THIS MILLENNIUM PARK EASEMENT AGREEMENT (this "**Agreement**") is entered on this _____ day of June 2021 by HARRISVILLE CITY CORPORATION and its respective successors, assigns, licensees, and agents ("**Grantor**") and BLD INVESTMENT, a Utah limited liability company and its successors and assigns ("**Grantee**")

RECITALS

A. Grantor is the owner of that certain real property located in Weber County, Utah, as more particularly described on Exhibit A attached hereto and incorporated herein (the "**Millennium Park**").

B. Grantee is under contract to purchase that certain real property located in Weber County, Utah, located adjacent to the Millennium Park, as more particularly described on Exhibit B attached hereto and incorporated herein (the "**Ben Lomond Views Project**") (Millennium Park and together with Ben Lomond Views Project, each individually, a "**Property**", and together, the "**Properties**").

C. Upon the closing of its purchase of the Ben Lomond Views Project property, Grantee intends to develop a master planned community on Ben Lomond View Project pursuant to a Master Development Agreement of even date hereof (the "MDA"), to be effective as of the date of the recording of that MDA, following the closing of Grantee's purchase of the Ben Lomond Views Project property and.

D. As a part of the development on Ben Lomond Views Project Grantee intends to create a homeowners association ("HOA").

E. Conditional on and effective as of the date of Grantee's closing on its purchase of the Ben Lomond Views Project property, Grantor has agreed to grant to Grantee an irrevocable, non-exclusive easement (the "**Easement**") on Millennium Park.

NOW, THEREFORE, for and in consideration of the sum of Ten Dollars ($10.00), the foregoing Recitals, the following mutual promises and other good and valuable consideration, the receipt and sufficiency of which are hereby conclusively acknowledged, the Parties agree to the following:

TERMS

1. Grant of Easement. Grantor hereby grants to Grantee the Easement over Millennium Park subject to the specific provisions below.

2. Term of Easement. Unless otherwise agreed in writing between Grantor and Grantee, this Easement shall remain in full force and effect until midnight on December 31, 2042.

3. Use of Millennium Park. Grantor shall have the exclusive right to operate, program and manage Millennium Park. Grantor shall be solely responsible for any costs associated with such use except for the maintenance to be performed by Grantee as specified in Section 5.

4. Improvements to be Provided by Grantee. Grantee shall improve Millennium Park as more fully specified in Exhibit "S-2". (Engineering and Permitting to begin within 30 days after Effective Date of MDA, with construction of improvements to commence promptly thereafter.)

5. Maintenance by Grantee. Grantee, directly or through the HOA, shall cause to be performed such maintenance and repair as may be required, from time-to-time, to keep Millennium Park in a safe, good and clean condition for its use as a public, City park. This routine maintenance shall include, but not be limited to:

a. Mowing the grass;
b. Snow removal;
c. Picking up and removing trash;
d. Pruning trees and bushes
e. Mulching and weeding
f. Maintenance and cleaning of restrooms

6. Routine Repairs and Replacements. Grantee shall cause any improvements in Millennium Park to be repaired or replaced as may be required, from time-to-time, to keep Millennium Park in a safe, good and clean condition for its use as a public, City park,

7. Coordination. The Parties shall coordinate the performance of their respective responsibilities so that the operation, maintenance and repairs of Millennium Park shall be in a safe, good and clean condition for its use as a public, City park.

8. Indemnification. Each of Grantor and Grantee (the "**Indemnitor**") shall indemnify and hold harmless the other Party (the "**Indemnitee**") from and against any and all loss, cost, expense, damages, or liability, including reasonable attorney's fees (collectively, "**Claims**"), arising out of, as a result of, or in connection with, any claim, demand, action, suit, or proceeding made, threatened, or brought against the Indemnitee, by any person or entity using Millennium Park at the request of, or as a guest or invitee of, the Indemnitor; provided, however, that the foregoing indemnification and hold harmless obligation shall not apply to Claims to the extent caused by the gross negligence or intentional misconduct of the Indemnitee (or its agents, representatives, contractors or employees), any punitive, special, indirect or consequential damages, or the discovery of any existing physical or environmental conditions located on the Properties.

9. Insurance. Grantee shall obtain and maintain at all times, in full force and effect, a policy of general liability insurance issued by an insurance company authorized to do business in the State of Utah in the amount of $ 1,000,000. The existence of this insurance is not intended to modify any governmental immunity enjoyed by Grantor for its operation of Millennium Park. Each such liability insurance policy shall include the Millennium Park as part of the description of the property insured and shall name Grantor as an additional insured. Upon request, Grantee shall provide evidence of such insurance policy to Grantor.

10. Assignment of Grantee's Responsibilities. Grantee's responsibilities under Sections 5, 6 and 8 shall be assigned to and assumed by any assignee of Grantee's rights to the Ben Lomond Views Property and shall ultimately be assigned to and assumed by the HOA, when created.

11. Failure of Grantee or the HOA to Perform. If Grantee (or after any assignment, the HOA) fail to perform their obligations under this Agreement then Grantor shall give notice of such failure to Grantee (or after any assignment, the HOA). If Grantee (or after any assignment, the HOA) fails to promptly cure any failure then Grantor may take such actions as necessary to ensure that Millennium Park is in a safe, good and clean condition for its use as a public, City park. Any costs incurred by Grantor in talking such steps shall be paid by Grantee (or after any assignment, the HOA). If Grantee (or after any assignment, the HOA) fails to make any such required payment then Grantor shall be entitled to lien each property in Ben Lomond View Project for that property's pro rata share of the costs incurred by Grantor as measured by the assessed value of the property being assessed.

12. Covenants Running with the Land. The Easement hereby created, the restrictions hereby imposed, and the agreements herein contained shall be easements, restrictions, covenants, and conditions running with the land and shall inure to the benefit of and be binding upon the Owners, their grantees, and their respective heirs, personal representatives, successors, and assigns.

13. Enforcement. Enforcement of this Agreement shall be by appropriate proceeding, at law or in equity, against those persons or entities violating or attempting to violate any covenant, condition, or restriction herein contained. Grantor and Grantee shall each have the right to enforce this Agreement and such judicial proceeding shall be for the purpose of removing a violation, restraining a future violation, recovery of damages for any violation or for such other and further relief as may be available and the court shall award to the prevailing party in any such action all costs and reasonable attorney's fees. The failure to enforce or to cause the abatement of any violation of this Agreement shall not preclude or prevent the enforcement thereof or of a future or continued violation, whether such violation shall be of the same or of a different provision of this Agreement.

14. Construction. This Agreement shall be governed by and construed in accordance with the laws of the State of Utah. The headings and captions contained herein are inserted for convenience of reference only and are not to be deemed part of or to be used in construing any provision of this Agreement. When used herein, the singular shall include the plural and vice versa. Words of any gender used in this Agreement shall be construed to include any other gender. The rights and duties arising under this Agreement impose an obligation of reasonableness and good faith in performance and enforcement. Should any provision of this Agreement be declared invalid

or unenforceable by any court of competent jurisdiction, such decision shall not affect the validity or enforceability of the remaining provisions.

15. Amendment. This Agreement may be amended in whole or in part only by written instrument executed by all of the then record Owners of the Properties and the City.

16. No Joint Venture. Nothing herein is intended to be construed as creating a joint venture or partnership relationship between the parties hereto.

17. Counterparts. This Agreement may be executed in any number of counterparts each of which when so executed shall be deemed to be an original and all of which when taken together shall constitute one and the same agreement.

18. Further Acts and Assurances. The Parties agree to do and execute all and such further lawful and reasonable acts and assurances for the better and more effective carrying out of the intent and purposes of this Agreement as shall be reasonably necessary from time to time.

19. Time is of the Essence. Time is of the essence with respect to the performance of each of the provisions, covenants and agreements contained in this Agreement.

IN WITNESS WHEREOF, the undersigned have set their hands and seals as of the day and year first above written.

* * * * * * SIGNATURE PAGES FOLLOW * * * * * *

GRANTOR:
HARRISVILLE CITY, a Utah municipal corporation

_____
Michelle Tait, Mayor

APPROVED AS TO FORM:
Harrisville City Attorney's Office

_____

ATTEST:
Harrisville City Recorder's Office

_____
City Recorder

STATE OF UTAH)
:ss
COUNTY OF WEBER)

The foregoing instrument was acknowledged before me this _____, 2021, by Michelle Tait, Mayor of Harrisville City Corporation, a Utah municipal corporation, who duly acknowledges to me that said instrument was executed by authority.

WITNESS my hand and official seal.

_____
Notary Public

* * * * * *ADDITIONAL SIGNATURE PAGE FOLLOWS * * * * * *

GRANTEE:
BLD INVESTMENT, LLC, a Utah limited liability company

By:_____
Name: Douglas E. Palermo
Title: Manager

STATE OF UTAH)
:ss
COUNTY OF WEBER)

This instrument was acknowledged before me on the ___ day of _____, 2021, by Douglas E. Palermo, Manager of BLD Investment, L.L.C., a Utah limited liability company, on behalf of said limited liability company.

WITNESS my hand and official seal.

_____
Notary Public

Exhibit S-2

IMPROVEMENTS TO BE PROVIDED BY GRANTEE

With reference to the drawing S-3:

1. Design and construct a 40-space parking lot with proper planting and fencing
2. Install sidewalk, curb and gutter along park boundary at 2000 N
3. Install Playground (5 to 12 years old target range)
4. Remove existing fencing all the way around the park
5. Existing trail is to remain
6. Grade existing ditch to soften the side slopes
7. Remove existing vegetation and landscape to the edge of the ditch
8. The existing ditch goes into a pipe at the west end that goes through the backyards of some existing homes. Consider re-routing the ditch so it does not go through the back yards of these homes. The existing turnout structure west of this area needs to be maintained to allow the irrigation company to continue to direct the flow.
9. Remove the three existing trees
10. Add 3 additional lights along the south side of the trail
11. Demolish existing restrooms and install new restrooms in the northeast corner of site.
12. Regrade and re-sod the area just north of the ditch overflow structure on the south side of the park
13. Install 3-foot safety fencing or a functional substitute agreed to by the City along approximately 500-feet of the southeast border of the Park adjacent to the drainage ditch.


Relocate restroom to this area. Avoid ditch easement
Install sidewalk
Remove existing fence
Existing room structure to be relocated on site or used elsewhere by city
Irrigation turnout structure to remain
Use this are for parking and playground
Remove three existing trees
Existing 24" or 30" RCP
Remove existing fence
Repair / Grade this area following ditch re-route on west side
Consider a new pipe or open ditch in this location and abandon existing pipe in back yards
Remove existing vegetation and grade ditch to soft side slopes

Exhibit T
City's Vested Laws (CD)

HARRISVILLE CITY
ORDINANCE 515

BEN LOMOND VIEW ZONING MAP AMENDMENT

AN ORDINANCE OF HARRISVILLE CITY, UTAH, AMENDING THE OFFICIAL ZONING MAP FOR CERTAIN PARCELS LOCATED AT APPROXIMATELY 1800 NORTH HIGHWAY 89 BASED UPON AN APPLICATION FILED WITH THE CITY; SEVERABILITY; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, Harrisville City is a municipal corporation, duly organized and existing under the laws of the State of Utah;

WHEREAS, *Utah Code Annotated* §10-8-84 and §10-8-60 allow municipalities in the State of Utah to exercise certain police powers and nuisance abatement powers, including but not limited to providing for safety and preservation of health, promotion of prosperity, improve community well-being, peace and good order for the inhabitants of the City;

WHEREAS, Title 10, Chapter 9a of the *Utah Code Annotated* enables municipalities to regulate land use and development;

WHEREAS, the City has adopted an Official General Plan and Zoning Map to govern land use within the City;

WHEREAS, the City received an Application to amend the Official Zoning Map of Harrisville City filed by the putative property owner, BLD INVESTMENT, LLC, and desires to act upon the same;

WHEREAS, the attached Exhibits "A" through "N" contain the required Plan Maps and Master Development Plans for the area of the proposed amendment to the Zoning Map;

WHEREAS, after publication of the required notice the Planning Commission held its public hearing on November 18, 2020, to take public comment on this proposed Ordinance, and gave its recommendation to _____ this Ordinance;

WHEREAS, the City Council received the recommendation from the Planning Commission and held its public meeting on _____, to act upon this Ordinance;

NOW, THEREFORE, be it ordained by the City Council of Harrisville as follows:

Section 1: **Zoning Map Amendment.** That the Zoning Map for certain real property identified as Weber County Parcel Numbers: 11-019-0001, 17-064-0055, 17-064-0002, 17-064-0017, 17-071-0045, 17-071-0055,17-071-0054, 17-071-0001, 17-071-0003 and as set forth in the attached Exhibits "A" through "T" which are hereby adopted and incorporated herein by this reference, is hereby changed from Open Space (O-1) and Agricultural (A-1) Zone to the Mixed-Use Large Project Ben Lomond Zone (MU-LP Ben Lomond Zone).

Section 2: **Plan Map, Master Development Plan, and Reversion.** The Plan Maps and Master Development Plans attached in as Exhibits "A" through "T" which are hereby adopted and incorporated herein by this reference are adopted as the required Plan Maps and

Master Development Plans for this Zoning Map Amendment. Any development must substantially conform to these Plan Maps and Master Development Plans. In the event that any development fails to substantially conform to the Plan Maps and Master Development Plans, or in the event that the final plat is not recorded with Weber County within eighteen (18) months of the effective date of this Ordinance, then the property is automatically reverted to its prior zoning of Open-Space (O-1) and Agricultural (A-1) Zone.

Section 3: Severability. If a court of competent jurisdiction determines that any part of this ordinance is unconstitutional or invalid, then such portion of the ordinance, or specific application of the ordinance, shall be severed from the remainder, which shall continue in full force and effect.

Section 4: Effective date. This Ordinance shall be effective immediately upon posting after final passage, approval, and posting.

PASSED AND ADOPTED by the City Council on this _____ day of _____, 2021.

_____
MICHELLE TAIT, Mayor
Harrisville City

ATTEST:

_____
JENNIE KNIGHT, City Recorder

Roll Call Vote Tally:

Council Member Wilhelmsen	Yes	No
Council Member Weiss	Yes	No
Council Member Christensen	Yes	No
Council Member Jackson	Yes	No
Council Member Loveland	Yes	No

RECORDED this _____ day of _____, 2021.
PUBLISHED OR POSTED this _____ day of _____, 2021.

CERTIFICATE OF PASSAGE AND PUBLICATION OR POSTING

According to the provision of U.C.A. §10-3-713, 1953 as amended, I, the municipal recorder of Harrisville City, hereby certify that foregoing ordinance was duly passed and published, or posted at 1) City Hall 2) Harrisville Cabin and 3) 2150 North on the above referenced dates.

_____ DATE:_____
City Recorder